

# Draft

## WATER QUALITY CERTIFICATE

**Certificate No:** 200600029-MG

**Municipality:** Towns of East Lyme and Waterford

**Work Area:** Mouth of the Niantic River/Long Island Sound located at the railroad bridge

**Certificate Holder:** National Railroad Passenger Corporation (Amtrak)  
c/o John Brun  
30<sup>th</sup> Street Station, 4<sup>th</sup> Floor South  
30<sup>th</sup> and Market Streets  
Philadelphia, PA 19104

Pursuant to section 401 of the Federal Clean Water Act, as amended; Section 307 of the Federal Coastal Zone Management Act and volume 15 of the Code of Federal Regulations, Part 930, Federal Consistency with Approved Coastal Management Programs; and in accordance with section 22a-98 of the Connecticut General Statutes ("CGS"), and the Connecticut Water Quality Standards dated December 2002, a water quality certificate ("certificate") and federal coastal zone management consistency concurrence are hereby granted by the Commissioner of Environmental Protection ("Commissioner") to conduct improvements to the existing railroad bridge and tracks and to conduct groin placement and beach nourishment as is more specifically described below in the SCOPE OF AUTHORIZATION, in the Niantic River off property identified as the "work area" above.

### **\*\*\*\*\*NOTICE TO CERTIFICATE HOLDERS AND CONTRACTORS\*\*\*\*\***

**FAILURE TO CONFORM TO THE TERMS AND CONDITIONS OF THIS CERTIFICATE MAY SUBJECT THE CERTIFICATE HOLDERS AND ANY CONTRACTOR TO ENFORCEMENT ACTIONS, INCLUDING PENALTIES AND INJUNCTIONS, AS PROVIDED BY LAW.**

### **SCOPE OF AUTHORIZATION**

The Certificate Holder is hereby authorized to conduct the following work as described in Water Quality Certificate #200600029-MG including forty-three (43) sheets of plans dated May 15, 2009, submitted by the Certificate Holder to the Commissioner and attached hereto:

1. construct a new 42' wide by 373' long three-span bridge with a 140½' long movable center span, located 58' south of the existing bridge, with two (2) reinforced concrete abutments, a 38' wide by 90' long reinforced concrete combined tower/bascule pier, and an 18' wide by 58' long reinforced concrete rest pier;
2. using mechanical means, remove 5,400 cubic yards of sediment from the existing channel bottom to allow for the installation of the concrete piers identified above;

3. construct a new four-story control building including new bridge control equipment and electrical facilities;
4. install and maintain appropriate sedimentation and erosion control measures;
5. remove the existing at-grade and elevated pile-supported boardwalk at the westerly approach from station 71+06 to station 96+00;
6. construct 7,600 linear feet of track realignment, approximately 5,220 linear feet to the west of the existing bridge and 2,100 linear feet located east of the existing bridge consisting of interlocking precast concrete sheetpile panel sections and concrete;
7. construct a new 10' wide boardwalk at the top of the railroad retaining wall identified above;
8. place bedding stone, underlayer stone, armor stone and revetment stone located waterward of the retaining wall identified above;
9. relocate the existing navigation channel and construct a new composite bridge fender system with railings and walkway;
10. using mechanical means, remove 300 cubic yards of material to a depth of -8.0' MLW between the bridge piers;
11. remove existing communication and signal lines;
12. using mechanical means, remove 2,300 cubic yards of material to install new communication and signal lines to a depth of -18' MLW or 7' below the existing channel, whichever is deeper;
13. backfill the cable trench identified above with clean sand that is similar in grain-size to the existing excavated material;
14. install new railroad electric traction power lines;
15. install a temporary sheetpile cofferdam around the existing bridge piers;
16. remove the existing railroad bridge superstructure and substructure including the electrical catenary system, all mechanical and electrical equipment, timber fender system, control house and shed, four (4) 10' wide by 40' long bridge piers, two (2) 8' wide by 25' long abandoned bridge piers and an abandoned 32' diameter caisson abandoned pier;
17. construct a 230' long terminal stone groin with a sheet pile cut off wall in the center with a top elevation of +9.0' NGVD at the landward end sloping to +6.0' NGVD at the waterward end of the groin;

18. conduct beach nourishment;
19. remove the temporary cofferdam identified in paragraph 15., above;
20. restore construction-related impacts to pre-existing conditions.

**UPON INITIATION OF ANY WORK AUTHORIZED HEREIN, THE CERTIFICATE HOLDER ACCEPTS AND AGREES TO COMPLY WITH ALL TERMS AND CONDITIONS OF THIS CERTIFICATE.**

**SPECIAL TERMS AND CONDITIONS**

1. Unconfined in-water excavation, dredging, filling or removal of debris or other material is prohibited between February 1<sup>st</sup> through September 30<sup>th</sup>, inclusive, to protect anadromous finfish migration and spawning shellfish unless otherwise authorized in writing by the Commissioner.
2. The Certificate Holder shall reuse dredged material that is suitable for on-site reuse. Material that is not suitable for reuse shall be disposed of at an approved upland location, located landward of the high tide line and outside of any tidal wetland vegetation.
3. Prior to the commencement of the work authorized herein, the Certificate Holder shall install sedimentation and erosion control measures around the construction area. The Certificate Holder shall maintain such sedimentation and erosion control measures in optimal operating condition until the work authorized herein has been completed and the area has stabilized.
4. The Certificate Holder shall, no later than ninety (90) days prior to the commencement of the work authorized herein, provide the Commissioner with a detailed plan on the specific means and methods to be employed by the selected contractor(s) of all of the construction work. Such plan shall include a detailed operational sequence, materials and equipment staging locations, construction methodology, etc. and shall be submitted to the Commissioner for her review and written approval and shall be implemented in accordance with the Commissioner's written approval.
5. Prior to the work authorized pursuant to paragraphs 5. and 6. of the SCOPE OF AUTHORIZATION, above, the Certificate Holder shall collect and stockpile the existing cobble from the intertidal zone and reestablish the cobble once the beach nourishment has been completed.
6. Within ninety (90) days of issuance of this certificate, the Certificate Holder shall submit a plan for beach nourishment for the Commissioner's review and written approval. Such plan must identify the source of the sand; define the area to be nourished; volume of material and a grain-size analysis of the material. The Certificate Holder shall implement the plan upon approval by the Commissioner.

7. The Certificate Holder shall, no later than ninety (90) days prior to the commencement of the work authorized herein, provide the Commissioner with a dewatering plan to be employed by the selected contractor(s). Such plan shall be submitted to the Commissioner for her review and written approval and shall be implemented in accordance with the Commissioner's written approval.
8. The Certificate Holder shall remove the bridge piers to a depth of 5' below the existing mudline.
9. The Certificate Holder shall install and maintain debris nets associated with the work associated with the bridge demolition authorized pursuant to paragraph 16. of the SCOPE OF AUTHORIZATION, above.
10. The Certificate Holder shall remove the temporary sheetpile cofferdam no later than two (2) weeks following completion of the work authorized herein.
11. The Certificate Holder shall receive the necessary approval(s) from the United States Coast Guard.
12. The work authorized in paragraph 13. of the SCOPE OF AUTHORIZATION, above shall not exceed the elevation of the surrounding substrate.
13. Sediment dredged pursuant to this authorization shall not be sold nor shall any fee for its use be charged without the express prior written authorization of the Commissioner and payment of a \$4.00 per yard royalty to the State of Connecticut Department of Environmental Protection, pursuant to section 22a-361(e) of the General Statutes.
14. Dragging the bottom with a spoil barge, scow, vessel, beam or similar equipment outside of the area authorized by this certificate to be dredged or excavated is prohibited.
15. Sidecasting or in-water rehandling of dredged or excavated material is prohibited.
16. Spoil scows or barges shall be loaded and navigated in a manner which prevents uncontrollable motion or spillage and washout of dredged or excavated materials.
17. Prior to the commencement of the work authorized herein, the Certificate Holder shall locate and transplant existing populations of seabeach sandwort (*Honkenia peploides*) to a suitable location containing existing populations of seabeach sandwort. Upon completion of the work authorized herein, including beach nourishment, the Certificate Holder shall transplant the seabeach sandwort by transplanting the entire populations, collecting cuttings or by collecting individual rhizomes bearing adventitious roots and buds and replanting the seabeach sandwort in areas among the stone revetment.
18. Not later than one week prior to the initiation of the activities authorized herein, the Certificate Holder shall post a Notice to Mariners in accordance with United States Coast Guard regulations and shall notify recreational boaters and commercial fishermen of the start and completion dates of the work, the hours in which the work will be performed, the name and

description of the work vessels, the VHF radio channel(s) the vessels will be monitoring and the Certificate Holder's point of contact for the in-water work.

19. The Certificate Holder shall ensure that the work associated with the removal of the existing bridge and the installation of the new bridge shall be conducted by water-based equipment and at no time shall the barge rest on the bottom. It shall not be a defense to this provision for the Certificate Holder to assert that it has no control over the operation of the barge.
20. Not later than two (2) weeks prior to the commencement of any work authorized herein, the Certificate Holder shall submit to the Commissioner, on the form attached hereto as Appendix A, the name(s) and address(es) of any contractor(s) employed to conduct such work and the expected date for commencement and completion of such work.
21. On or before (a) ninety (90) days after completion of the work authorized herein, or (b) upon expiration of the work completion date or any authorized one-year extension thereof, whichever is earlier, the Certificate Holder shall submit to the Commissioner "as-built" and "as-dredged" surveys of the work area prepared and sealed by a licensed engineer, licensed surveyor or licensed architect, as applicable, of the work area showing all contours, bathymetries, and structures.

#### **GENERAL TERMS AND CONDITIONS**

1. All work authorized by this certificate shall be completed within five (5) years from date of issuance of this certificate ("work completion date"), except that maintenance as specified in the SCOPE OF AUTHORIZATION may be conducted at any time, in accordance with all conditions of this certificate and any other applicable law.
  - a. The Certificate Holder may request a one-year extension of the work completion date. Such request shall be in writing and shall be submitted to the Commissioner at least thirty (30) days prior to said work completion date. Such request shall describe the work done to date, work which still needs to be completed and the reason for such extension. The Commissioner shall grant or deny such request in her sole discretion.
  - b. Any work authorized herein conducted after said work completion date or any authorized one-year extension thereof is a violation of this certificate and may subject the Certificate Holder to enforcement action, including penalties, as provided by law.
2. In conducting the work authorized herein, the Certificate Holder shall not deviate from the attached plans, as may be modified by this certificate. The Certificate Holder shall not make de minimis changes from said plans without prior written approval of the Commissioner.
3. Prior to the commencement of any work authorized hereunder, the Certificate Holder shall cause a copy of this certificate to be given to any contractor(s) employed to conduct such work. At the work area, the Certificate Holder shall, whenever work is being performed, make available for inspection a copy of this certificate and the final plans for the work authorized herein.

4. The Certificate Holder shall notify the Commissioner in writing of the commencement of any work and completion of all work authorized herein no later than three (3) days prior to the commencement of such work and no later than seven (7) days after the completion of such work.
5. Upon completion of any work authorized herein, the Certificate Holder shall restore all areas impacted by construction, or used as a staging area or accessway in connection with such work, to their condition prior to the commencement of such work.
6. Any document required to be submitted to the Commissioner under this certificate or any contact required to be made with the Commissioner shall, unless otherwise specified in writing by the Commissioner, be directed to:

Permit Section  
Office of Long Island Sound Programs  
Department of Environmental Protection  
79 Elm Street  
Hartford, Connecticut 06106-5127  
(860) 424-3034 Fax # (860) 424-4054

7. The date of submission to the Commissioner of any document required by this certificate shall be the date such document is received by the Commissioner. The date of any notice by the Commissioner under this certificate, including but not limited to notice of approval or disapproval of any document or other action, shall be the date such notice is personally delivered or the date three (3) days after it is mailed by the Commissioner, whichever is earlier. Except as otherwise specified in this certificate, the word "day" as used in this certificate means calendar day. Any document or action which is required by this certificate to be submitted or performed by a date which falls on a Saturday, Sunday or a Connecticut or federal holiday shall be submitted or performed on or before the next day which is not a Saturday, Sunday, or a Connecticut or federal holiday.
8. The work specified in the SCOPE OF AUTHORIZATION is authorized solely for the purpose set out in this certificate. No change in the purpose or use of the authorized work or facilities as set forth in this certificate may occur without the prior written authorization of the Commissioner. The Certificate Holder shall, prior to undertaking or allowing any change in use or purpose from that which is authorized by this certificate, request authorization from the Commissioner for such change. Said request shall be in writing and shall describe the proposed change and the reason for the change.
9. This certificate may be revoked, suspended, or modified in accordance with applicable law.
10. This certificate is not transferable without prior written authorization of the Commissioner. A request to transfer a certificate shall be submitted in writing and shall describe the proposed transfer and the reason for such transfer. The Certificate Holder's obligations under this certificate shall not be affected by the passage of title to the work area to any other person or

municipality until such time as a transfer is authorized by the Commissioner.

11. The Certificate Holder shall allow any representative of the Commissioner to inspect the work authorized herein at reasonable times to ensure that it is being or has been accomplished in accordance with the terms and conditions of this certificate.
12. In granting this certificate, the Commissioner has relied on representations of the Certificate Holder, including information and data provided in support of the Certificate Holder's application. Neither the Certificate Holder's representations nor the issuance of this certificate shall constitute an assurance by the Commissioner as to the structural integrity, the engineering feasibility or the efficacy of such design.
13. In the event that the Certificate Holder became aware that they did not or may not comply, or did not or may not comply on time, with any provision of this certificate or of any document required hereunder, the Certificate Holder shall immediately notify the Commissioner and shall take all reasonable steps to ensure that any noncompliance or delay is avoided or, if unavoidable, is minimized to the greatest extent possible. In so notifying the Commissioner, the Certificate Holder shall state in writing the reasons for the noncompliance or delay and propose, for the review and written approval of the Commissioner, dates by which compliance will be achieved, and the Certificate Holder shall comply with any dates which may be approved in writing by the Commissioner. Notification by the Certificate Holder shall not excuse noncompliance or delay and the Commissioner's approval of any compliance dates proposed shall not excuse noncompliance or delay unless specifically stated by the Commissioner in writing.
14. In evaluating the application for this certificate the Commissioner has relied on information and data provided by the Certificate Holder and on the Certificate Holder's representations concerning site conditions, design specifications and the proposed work authorized herein, including but not limited to representations concerning the commercial, public or private nature of the work or structures authorized herein, the water-dependency of said work or structures, its availability for access by the general public, and the ownership of regulated structures or filled areas. If such information proves to be false, deceptive, incomplete or inaccurate, this certificate may be modified, suspended or revoked, and any unauthorized activities may be subject to enforcement action.
15. The Certificate Holder may not conduct work waterward of the high tide line or in tidal wetlands at this certificate site other than the work authorized herein, unless otherwise authorized by the Commissioner pursuant to section 22a-359 et. seq. and/or section 22a-32 et. seq. of the CGS.
16. The issuance of this certificate does not relieve the Certificate Holder of their obligations to obtain any other approvals required by applicable federal, state and local law.
17. Any document, including but not limited to any notice, which is required to be submitted to the Commissioner under this certificate shall be signed by the Certificate Holder and by the

individual or individuals responsible for actually preparing such document, each of whom shall certify in writing as follows: "I have personally examined and am familiar with the information submitted in this document and all attachments and certify that based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief, and I understand that any false statement made in this document or its attachments may be punishable as a criminal offense."

18. This certificate is subject to and does not derogate any present or future property rights or powers of the State of Connecticut, and conveys no property rights in real estate or material nor any exclusive privileges, and is further subject to any and all public and private rights and to any federal, state or local laws or regulations pertinent to the property or activity affected hereby.

Issued on \_\_\_\_\_, 2009.

STATE OF CONNECTICUT  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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**Amey W. Marrella**  
**Acting Commissioner**

**Certificate No. 200600029-MG, East Lyme and Waterford**  
**National Railroad Passenger Corporation**



**OFFICE OF LONG ISLAND SOUND PROGRAMS**

**APPENDIX A**

**TO: Permit Section**  
**Department of Environmental Protection**  
**Office of Long Island Sound Programs**  
**79 Elm Street**  
**Hartford, CT 06106-5127**

**CERTIFICATE HOLDER:** National Railroad Passenger Corporation (Amtrak)  
c/o John Brun  
30<sup>th</sup> Street Station, 4<sup>th</sup> Floor South  
30<sup>th</sup> and Market Streets  
Philadelphia, PA 19104

**Certificate No:** 200600029-MG, East Lyme and Waterford

**CONTRACTOR 1:** \_\_\_\_\_

Address: \_\_\_\_\_

Telephone #: \_\_\_\_\_

**CONTRACTOR 2:** \_\_\_\_\_

Address: \_\_\_\_\_

Telephone #: \_\_\_\_\_

**CONTRACTOR 3:** \_\_\_\_\_

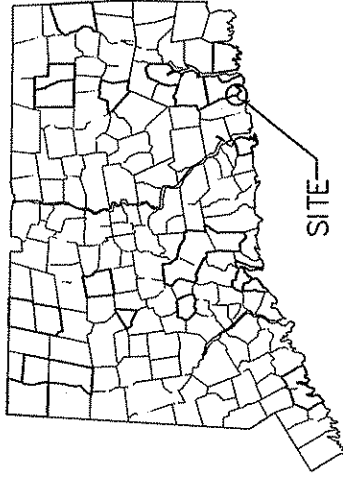
Address: \_\_\_\_\_

Telephone #: \_\_\_\_\_

**EXPECTED DATE OF COMMENCEMENT OF WORK:** \_\_\_\_\_

**EXPECTED DATE OF COMPLETION OF WORK:** \_\_\_\_\_

**CERTIFICATE HOLDER:** \_\_\_\_\_  
(signature) (date)



PROJECT LOCATION  
SCALE: N.T.S.

# LOCATION AND VICINITY

REPLACEMENT OF NIAN TIC RIVER  
RAILROAD BRIDGE  
East Lyme and Waterford, Connecticut

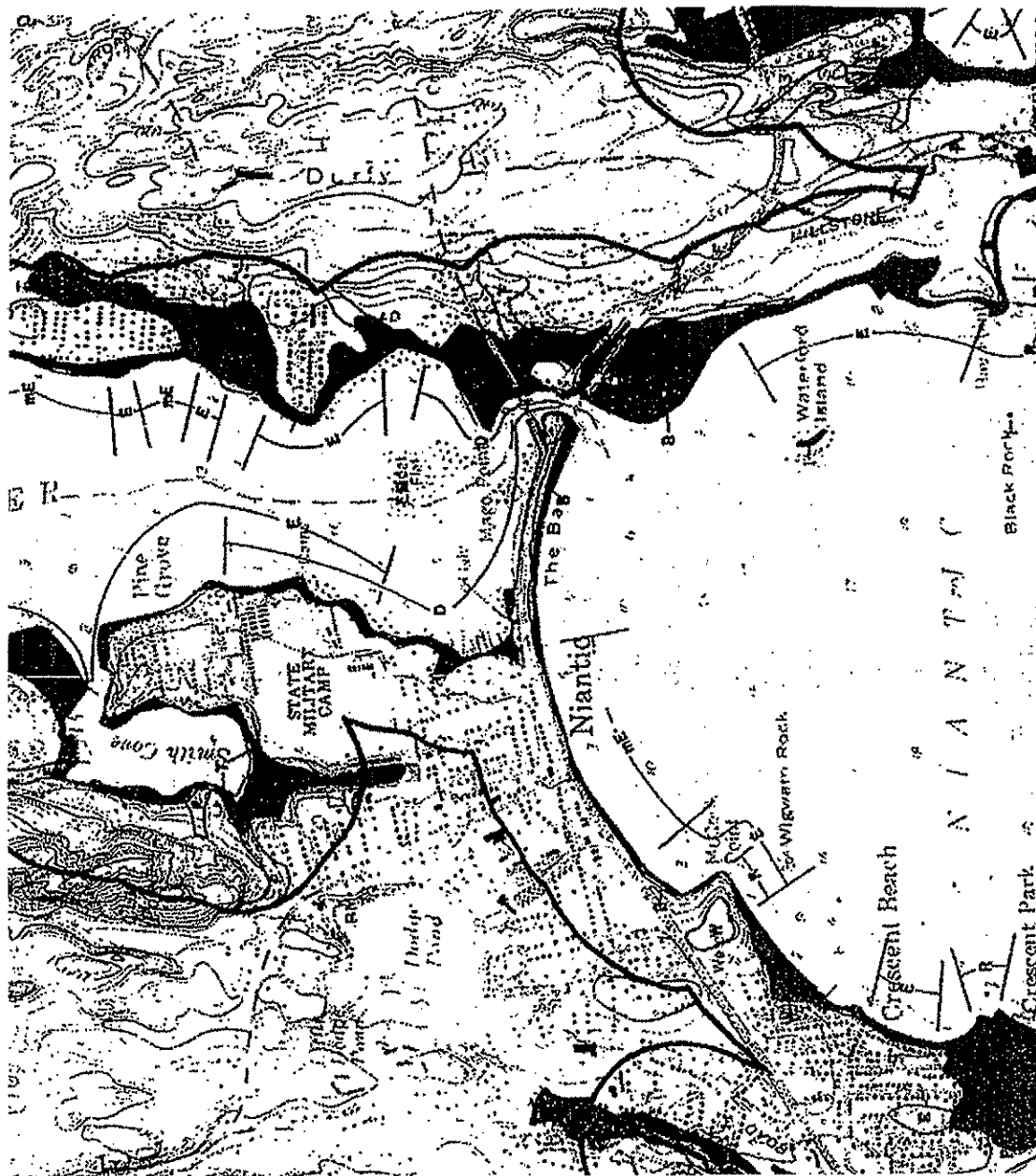
National Railroad Passenger Corporation (AMTRAK)  
30th Street Station, 4th Floor South  
30th & Market Streets  
Philadelphia, PA 19104

DATE: 5/15/09

SHEET 1

PROJECT VICINITY  
SCALE 1"=2,000'





Key:

## E=Coastal Bluffs and Escarpments

mE=Modified Bluffs and Escarpments

R=Rocky Shorefront

### B-Beach and Dune

mB=Modified Beach and Dune

EM=Estuarine Embayments

Shading=Coastal Flood Hazard Area

## CONNECTICUT COASTAL RESOURCES

REPLACEMENT OF NANTIC RIVER  
RAILROAD BRIDGE

East Lyme and Waterford, Connecticut

National Railroad Passenger Corporation (AMTRAK)

30th Street Station, 4th Floor South

30th & Market Streets  
Philadelphia, PA 19104

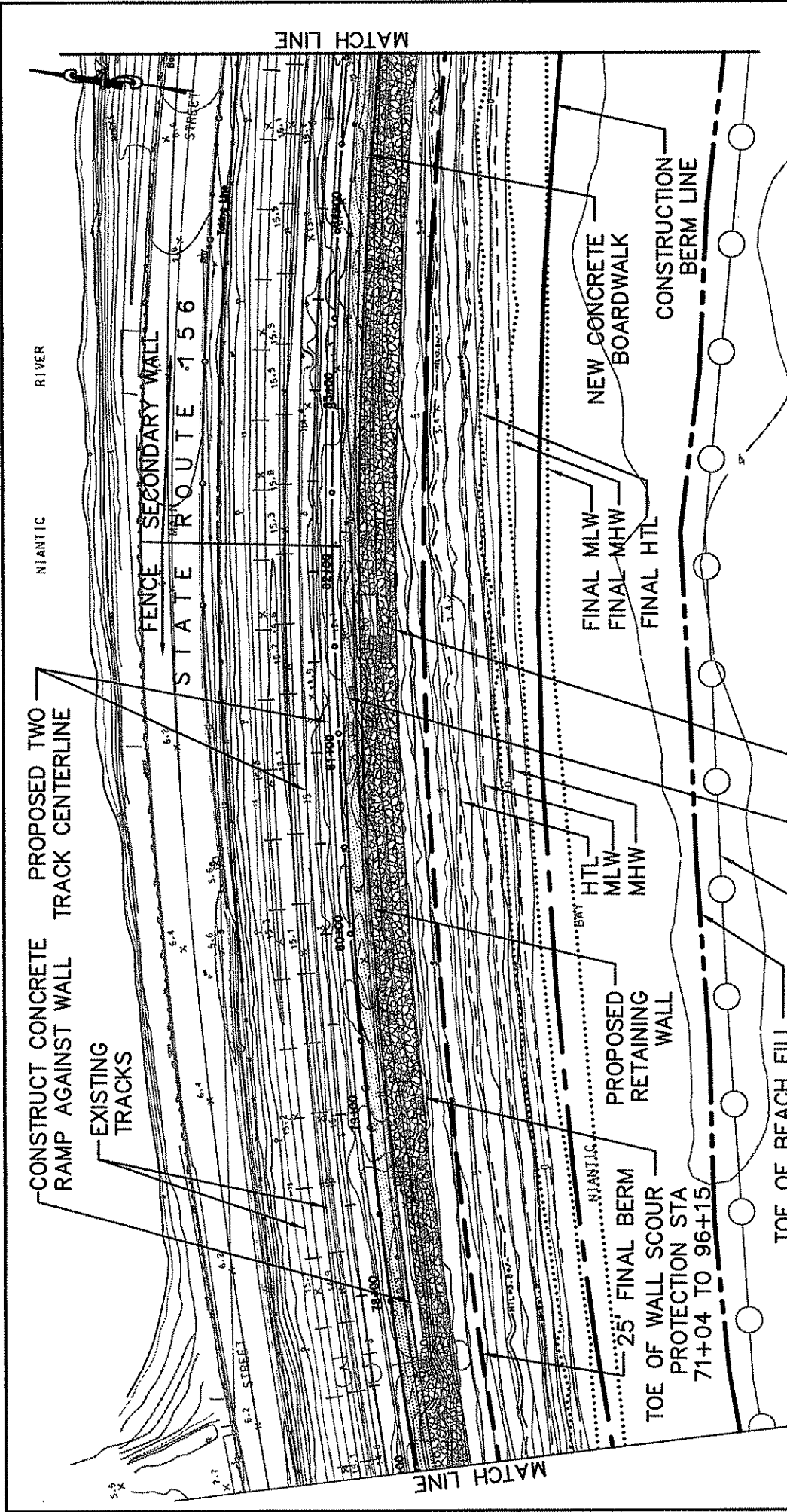
Philadelphia, PA 19104

DATE: 5/15/09

SHEET 2



DATE: 5/15/09 SHEET 3



DETAILED SITE PLAN-2	
REPLACEMENT OF NIANTIC RIVER RAILROAD BRIDGE	
East Lyme and Waterford, Connecticut	
National Railroad Passenger Corporation (AMTRAK)	
30th Street Station, 4th Floor South	
30th & Market Streets	
Philadelphia, PA 19104	
DATE: 5/15/09	SHEET 4

LONG ISLAND SOUND

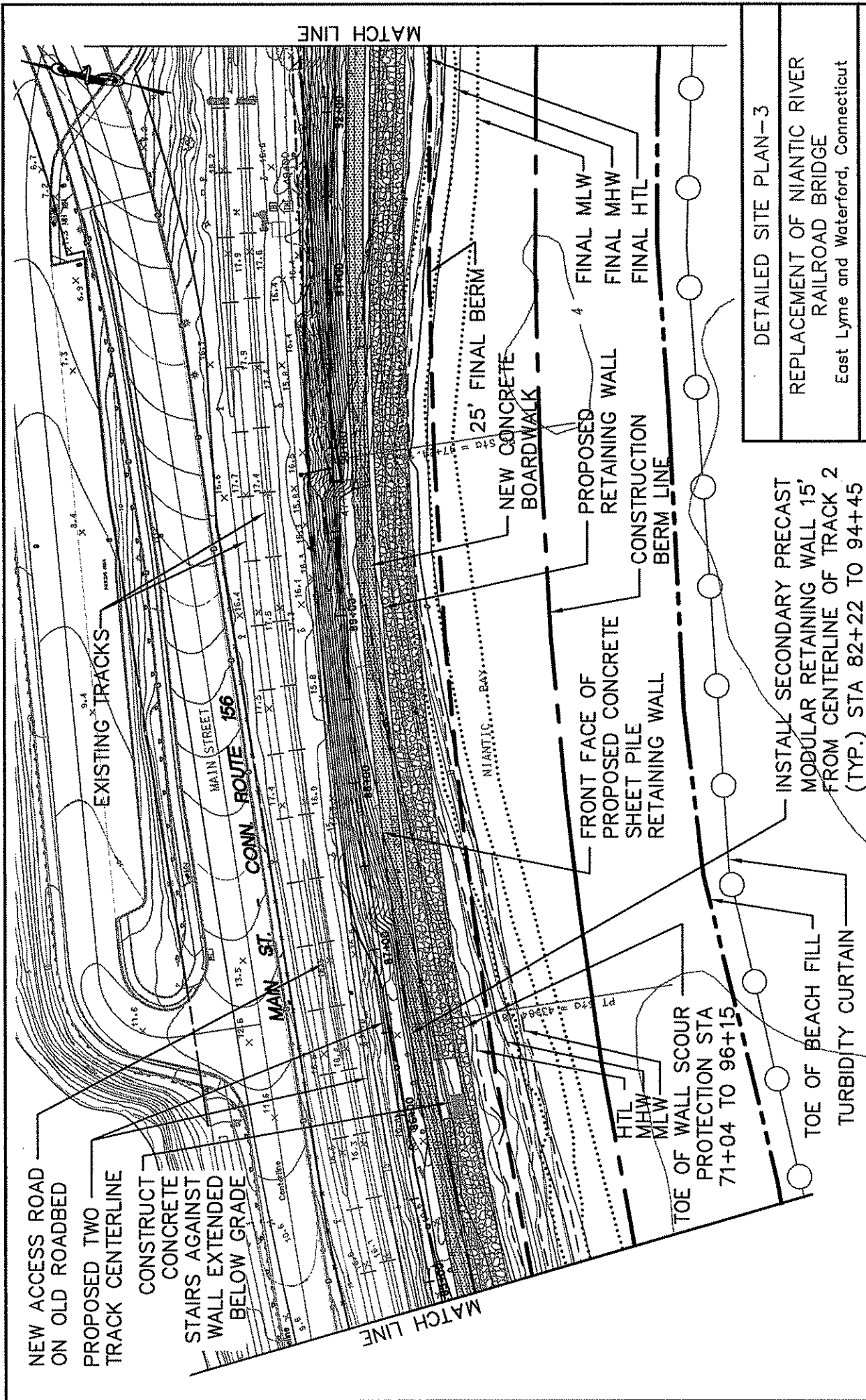
TIDAL DATUM (NGVD 1929)

H.T.L. = ELEV. +3.8  
M.H.W. = ELEV. +1.96  
M.L.W. = ELEV. -0.61  
100 YR FLOOD ELEV. = +11.0

EXCEPT AS NOTED  
HTL, MHW, AND MLW ARE  
THE SAME IN EXISTING AND  
PROPOSED CONDITIONS

PLAN VIEW  
SCALE 1"=80'

0 20 40 80



DETAILED SITE PLAN-3

REPLACEMENT OF NIANTIC RIVER  
RAILROAD BRIDGE  
East Lyme and Waterford, Connecticut

National Railroad Passenger Corporation (AMTRAK)  
30th Street Station, 4th Floor South  
30th & Market Streets  
Philadelphia, PA 19104

DATE: 5/15/09

SHEET 5

TIDAL DATUM (NGVD 1929)

H.T.L. = ELEV. +3.8  
M.H.W. = ELEV. +1.96  
M.L.W. = ELEV. -0.61  
100 YR FLOOD ELEV. = +11.0

EXCEPT AS NOTED  
HTL, MHW, AND MLW ARE  
THE SAME IN EXISTING AND  
PROPOSED CONDITIONS

PLAN VIEW  
SCALE 1"=80'

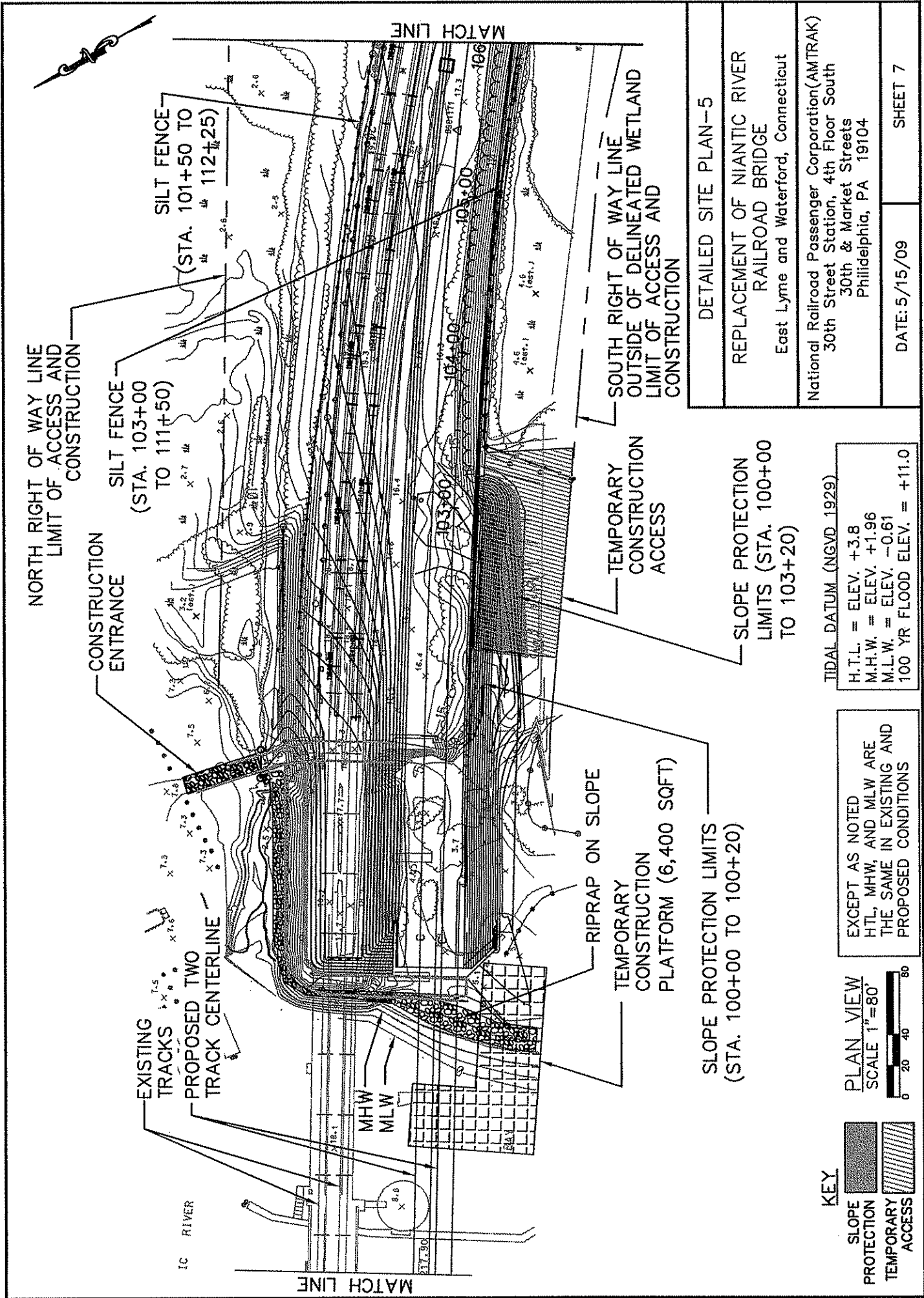






**PLAN VIEW**  
**SCALE 1"=80'**

SHEET 6



MATCH LINE

MATCH LINE

DETAILED SITE PLAN-5

REPLACEMENT OF NIANTIC RIVER  
RAILROAD BRIDGE  
East Lyme and Waterford, Connecticut

National Railroad Passenger Corporation (AMTRAK)  
30th Street Station, 4th Floor South  
30th & Market Streets  
Philadelphia, PA 19104

DATE: 5/15/09

SHEET 7

TIDAL DATUM (NGVD 1929)  
H.T.L. = ELEV. +3.8  
M.H.W. = ELEV. +1.96  
M.L.W. = ELEV. -0.61  
100 YR FLOOD ELEV. = +11.0

EXCEPT AS NOTED  
HTL, MHW, AND MLW ARE  
THE SAME IN EXISTING AND  
PROPOSED CONDITIONS

PLAN VIEW  
SCALE 1"=80'

KEY  
SLOPE PROTECTION  
TEMPORARY ACCESS

NORTH RIGHT OF WAY LINE  
LIMIT OF ACCESS AND  
CONSTRUCTION

CONSTRUCTION  
ENTRANCE

SILT FENCE  
(STA. 103+00  
TO 111+50)

SILT FENCE  
(STA. 101+50 TO  
112+25)

EXISTING  
TRACKS  
PROPOSED TWO  
TRACK CENTERLINE

MHW  
MLW

RIPRAP ON SLOPE

TEMPORARY  
CONSTRUCTION  
PLATFORM (6,400 SQFT)

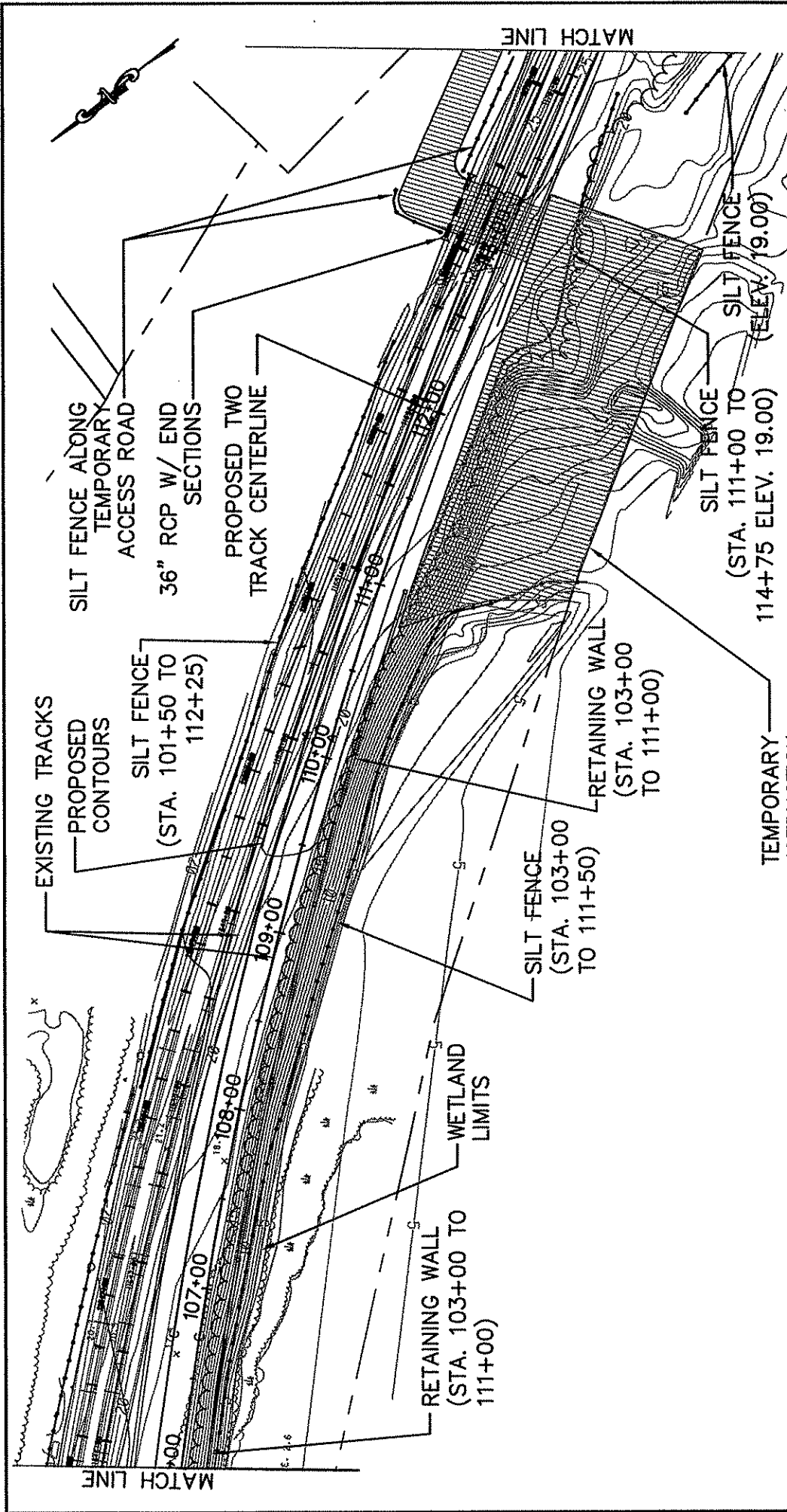
SLOPE PROTECTION LIMITS  
(STA. 100+00 TO 100+20)

TEMPORARY  
CONSTRUCTION  
ACCESS

SLOPE PROTECTION  
LIMITS (STA. 100+00  
TO 103+20)

SOUTH RIGHT OF WAY LINE  
OUTSIDE OF DELINEATED WETLAND  
LIMIT OF ACCESS AND  
CONSTRUCTION





DETAILED SITE PLAN-6	
REPLACEMENT OF NIANTIC RIVER RAILROAD BRIDGE East Lyme and Waterford, Connecticut	
National Railroad Passenger Corporation (AMTRAK) 30th Street Station, 4th Floor South 30th & Market Streets Philadelphia, PA 19104	
DATE: 5/15/09	SHEET 8

TIDAL DATUM (NGVD 1929)  
 H.T.L. = ELEV. +3.8  
 M.H.W. = ELEV. +1.96  
 M.L.W. = ELEV. -0.61  
 100 YR FLOOD ELEV. = +11.0

EXCEPT AS NOTED  
 HTL, MHW, AND MLW ARE  
 THE SAME IN EXISTING AND  
 PROPOSED CONDITIONS

PLAN VIEW  
 SCALE 1"=80'



KEY



TEMPORARY CONSTRUCTION ACCESS ROAD  
DESIGN BY CONTRACTOR  
SUBMIT GRADING PLAN AND  
OBTAIN ALL PERMITS

MAXIMUM ALLOWABLE VEHICLE:  
AASHTO WB40 SEMI-TRAILER  
LENGTH 45.5'  
TURNING RADIUS 36.03'

ALL TRACKED EQUIPMENT PERMITTED

PROPOSED  
CONTOURS

CONSTRUCTION  
ENTRANCE

TEMPORARY GATE AT CUL-DE-SAC  
TEMPORARY RAMP AT CURB  
RESTORE AFTER CONSTRUCTION TO  
ORIGINAL CONDITION

NORTH RIGHT OF  
WAY/PROPERTY LINE  
NORTH LIMIT OF ACCESS  
AND CONSTRUCTION

PROPOSED TWO  
TRACK CENTERLINE

EXISTING TRACKS  
SILT FENCE ALONG  
TEMPORARY ACCESS  
ROAD

SOUTH RIGHT OF WAY LINE  
SOUTH LIMIT OF ACCESS AND  
CONSTRUCTION

PLAN VIEW  
SCALE 1"=80'



KEY

TEMPORARY  
ACCESS

TIDAL DATUM (NGVD 1929)

H.T.L. = ELEV. +3.8

M.H.W. = ELEV. +1.96

M.L.W. = ELEV. -0.61

100 YR FLOOD ELEV. = +11.0

EXCEPT AS NOTED

HTL, MHW, AND MLW ARE

THE SAME IN EXISTING AND

PROPOSED CONDITIONS

DETAILED SITE PLAN-7

REPLACEMENT OF NIANTIC RIVER  
RAILROAD BRIDGE

East Lyme and Waterford, Connecticut

National Railroad Passenger Corporation (AMTRAK)

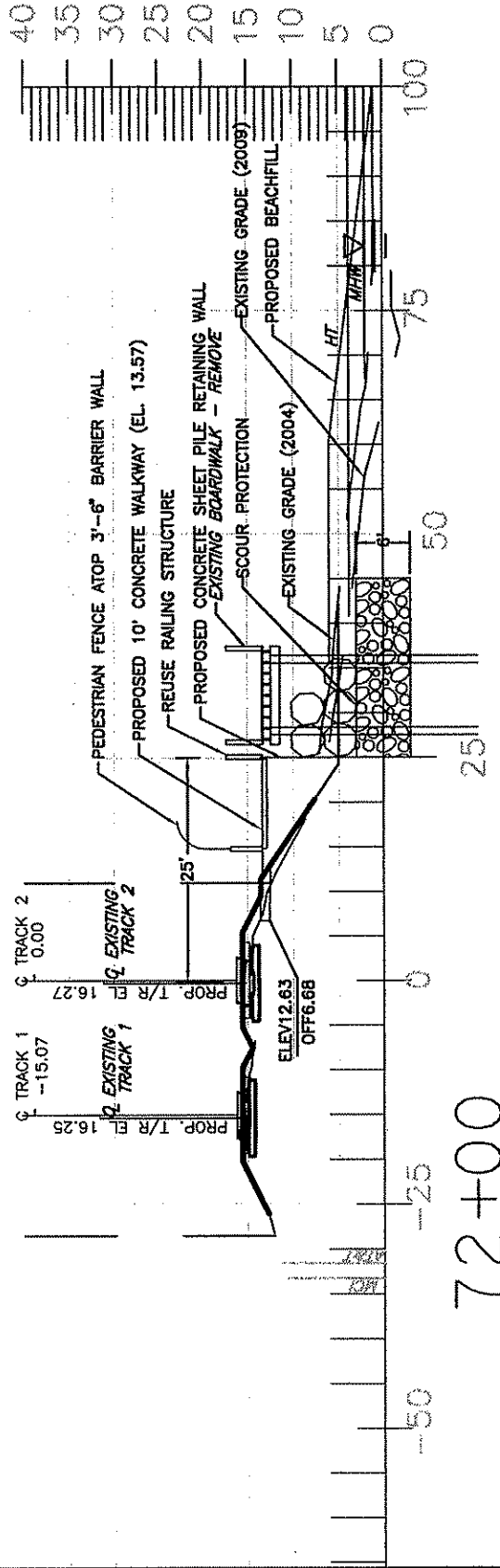
30th Street Station, 4th Floor South

30th & Market Streets

Philadelphia, PA 19104

DATE: 5/15/09

SHEET 9



SCALE 1"=20'



TYPICAL EMBANKMENT /W BOARDWALK

REPLACEMENT OF NIANTIC RIVER  
RAILROAD BRIDGE  
East Lyme and Waterford, Connecticut

National Railroad Passenger Corporation (AMTRAK)  
30th Street Station, 4th Floor South  
30th & Market Streets  
Philadelphia, PA 19104

DATE: 5/15/09

SHEET 10

EXCEPT AS NOTED  
HTL, MHW, AND MLW ARE  
THE SAME IN EXISTING AND  
PROPOSED CONDITIONS

TIDAL DATUM (NGVD 1929)

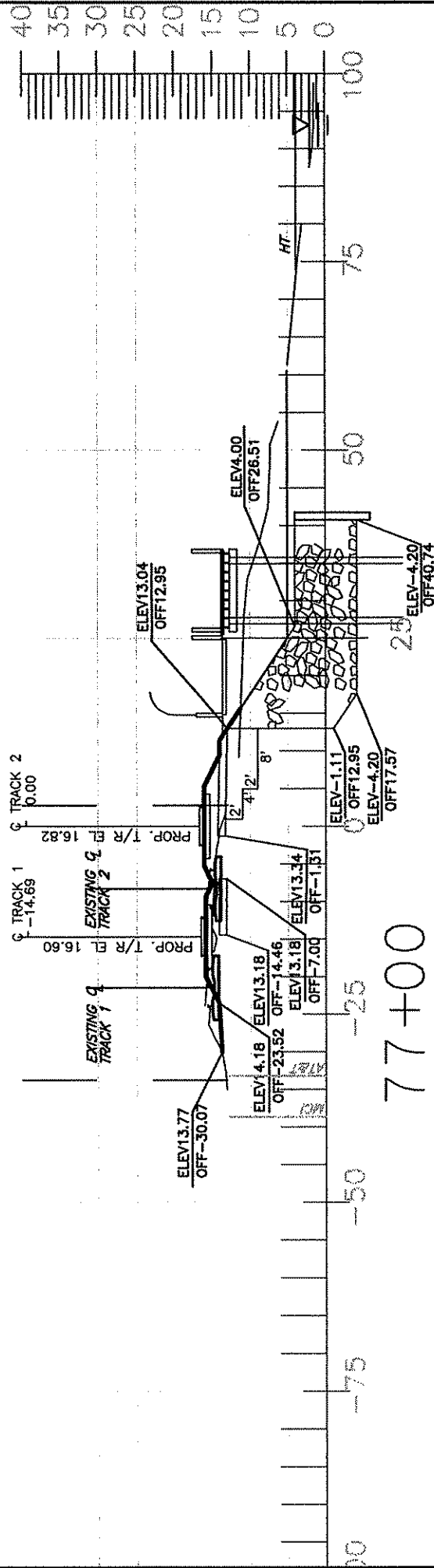
H.T.L. = ELEV. +3.8

M.H.W. = ELEV. +1.96

M.L.W. = ELEV. -0.61

100 YR FLOOD ELEV. = +11.0

TRACK STATION 100+00 TO 103+20



SCALE 1"=20'



TYPICAL EMBANKMENT /W BOARDWALK

REPLACEMENT OF NIANTIC RIVER  
RAILROAD BRIDGE  
East Lyme and Waterford, Connecticut

National Railroad Passenger Corporation (AMTRAK)  
30th Street Station, 4th Floor South  
30th & Market Streets  
Philadelphia, PA 19104

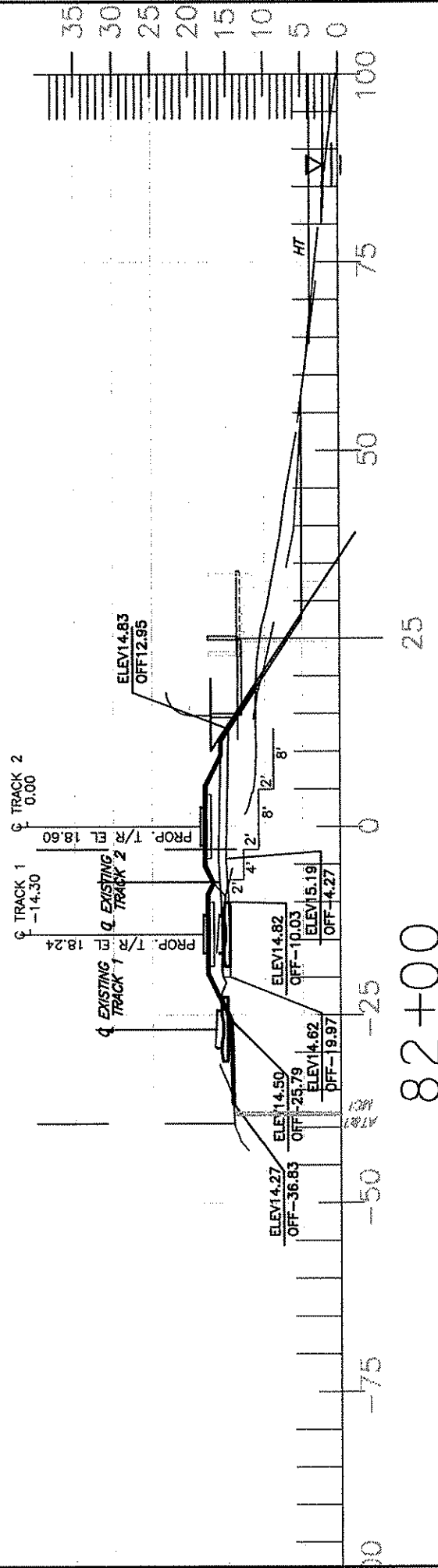
DATE: 5/15/09

SHEET 11

EXCEPT AS NOTED  
HTL, MHW, AND MLW ARE  
THE SAME IN EXISTING AND  
PROPOSED CONDITIONS

TIDAL DATUM (NGVD 1929)

H.T.L. = ELEV. +3.8  
M.H.W. = ELEV. +1.96  
M.L.W. = ELEV. -0.61  
100 YR FLOOD ELEV. = +11.0



SCALE 1"=20'



EXCEPT AS NOTED  
HTL, MHW, AND MLW ARE  
THE SAME IN EXISTING AND  
PROPOSED CONDITIONS

TIDAL DATUM (NGVD 1929)

H.T.L. = ELEV. +3.8  
M.H.W. = ELEV. +1.96  
M.L.W. = ELEV. -0.61  
100 YR FLOOD ELEV. = +11.0

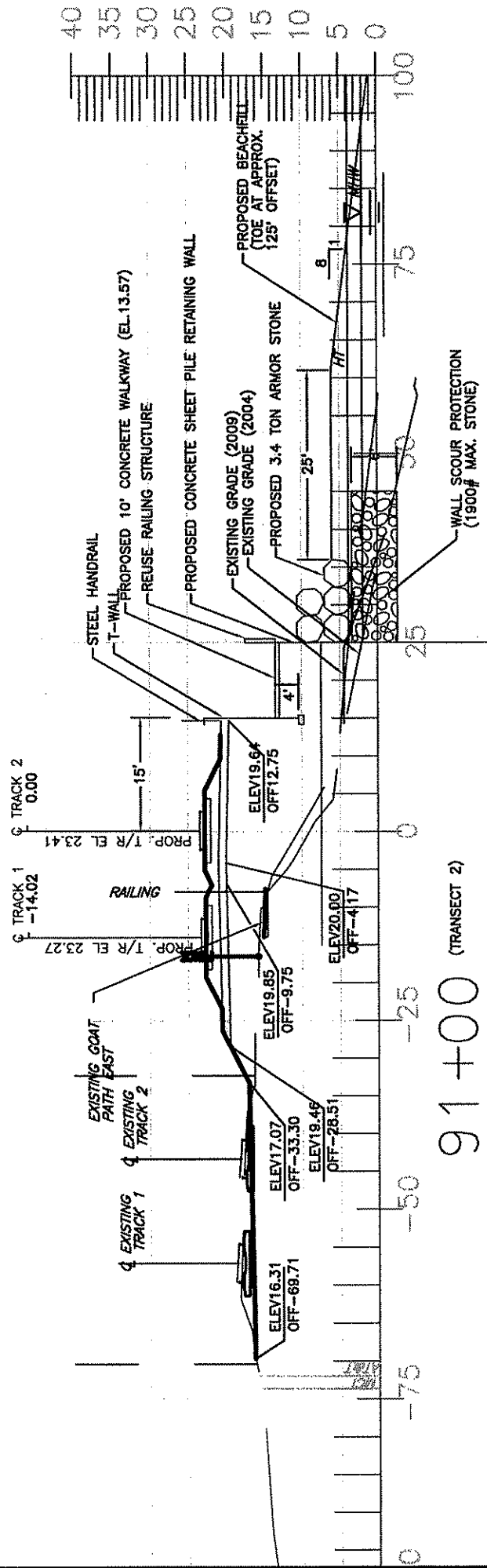
TYPICAL EMBANKMENT /W BOARDWALK

REPLACEMENT OF NIAN TIC RIVER  
RAILROAD BRIDGE  
East Lyme and Watertford, Connecticut

National Railroad Passenger Corporation (AMTRAK)  
30th Street Station, 4th Floor South  
30th & Market Streets  
Philadelphia, PA 19104

DATE: 5/15/09

SHEET 12



SCALE 1"=20'



TYPICAL EMBANKMENT /W BOARDWALK

REPLACEMENT OF NIANCTIC RIVER  
RAILROAD BRIDGE

East Lyme and Waterford, Connecticut

National Railroad Passenger Corporation (AMTRAK)  
30th Street Station, 4th Floor South  
30th & Market Streets  
Philadelphia, PA 19104

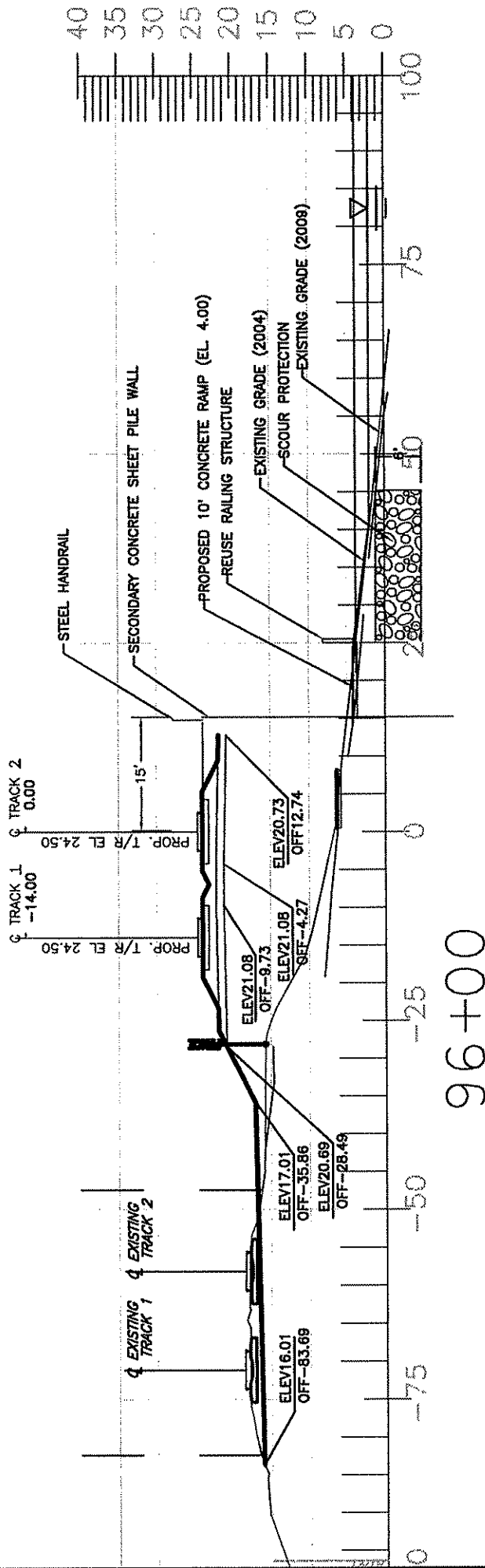
DATE: 5/15/09

SHEET 13

TIDAL DATUM (NGVD 1929)

H.T.L. = ELEV. +3.8  
M.H.W. = ELEV. +1.96  
M.L.W. = ELEV. -0.61  
100 YR FLOOD ELEV. = +11.0

EXCEPT AS NOTED  
HTL, MHW, AND MLW ARE  
THE SAME IN EXISTING AND  
PROPOSED CONDITIONS



SCALE 1"=20'



TYPICAL EMBANKMENT /W BOARDWALK

REPLACEMENT OF NIANTIC RIVER

RAILROAD BRIDGE

East Lyme and Waterford, Connecticut

National Railroad Passenger Corporation (AMTRAK)

30th Street Station, 4th Floor South

30th & Market Streets

Philadelphia, PA 19104

DATE: 5/15/09

SHEET 14

TIDAL DATUM (NGVD 1929)

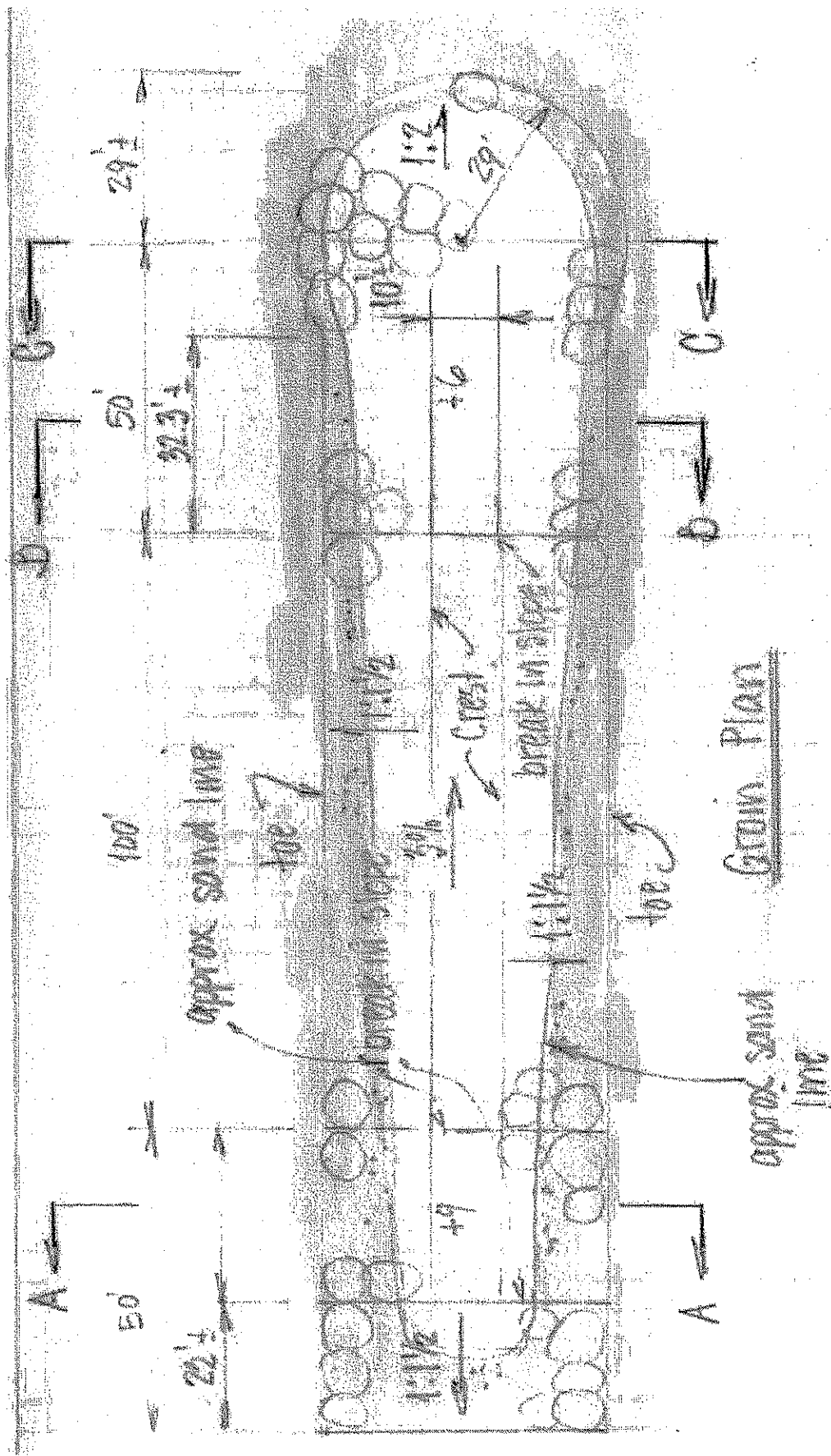
H.T.L. = ELEV. +3.8

M.H.W. = ELEV. +1.96

M.L.W. = ELEV. -0.61

100 YR FLOOD ELEV. = +11.0

EXCEPT AS NOTED  
HTL, MHW, AND MLW ARE  
THE SAME IN EXISTING AND  
PROPOSED CONDITIONS

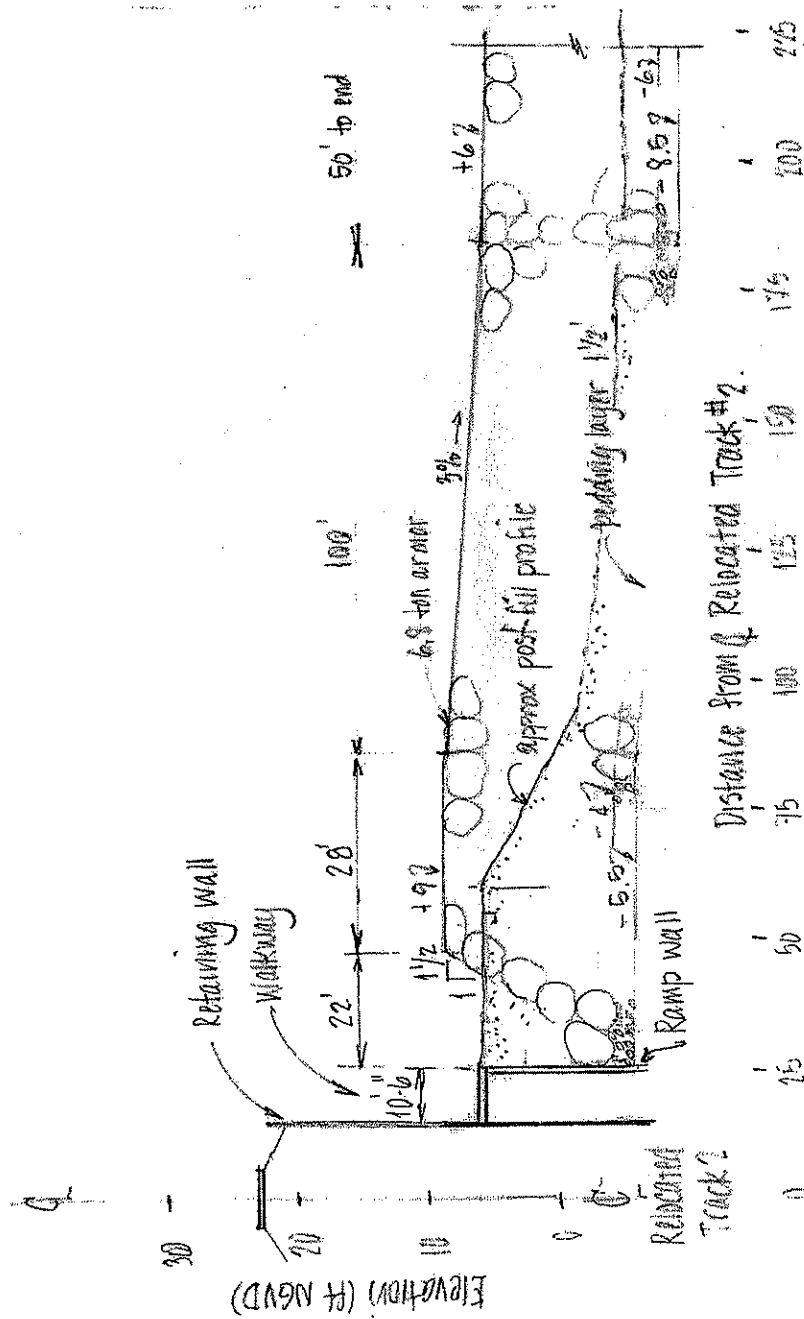


TERMINAL GROIN PLAN	
REPLACEMENT OF NIAN TIC RIVER RAILROAD BRIDGE East Lyme and Waterford, Connecticut	
National Railroad Passenger Corporation (AMTRAK) 30th Street Station, 4th Floor South 30th & Market Streets Philadelphia, PA 19104	
DATE: 5/15/09	SHEET 15

TIDAL DATUM (NGVD 1929)	
H.T.L. = ELEV. +3.8	
M.H.W. = ELEV. +1.96	
M.L.W. = ELEV. -0.61	
100 YR FLOOD ELEV. = +11.0	



# GROIN @ Sta 95+50



## GROIN PROFILE

REPLACEMENT OF NIAN TIC RIVER  
RAILROAD BRIDGE  
East Lyme and Waterford, Connecticut

National Railroad Passenger Corporation (AMTRAK)  
30th Street Station, 4th Floor South  
30th & Market Streets  
Philadelphia, PA 19104

DATE: 5/15/09

SHEET 16

TIDAL DATUM (NGVD 1929)

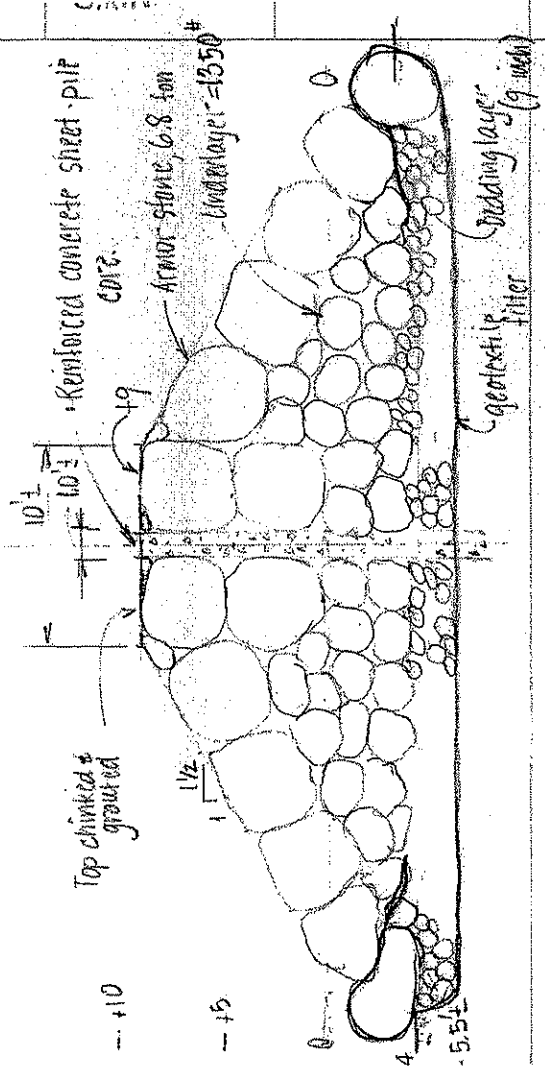
H.T.L. = ELEV. +3.8

M.H.W. = ELEV. +1.96

M.L.W. = ELEV. -0.61

100 YR FLOOD ELEV. = +11.0

19 Apr '09



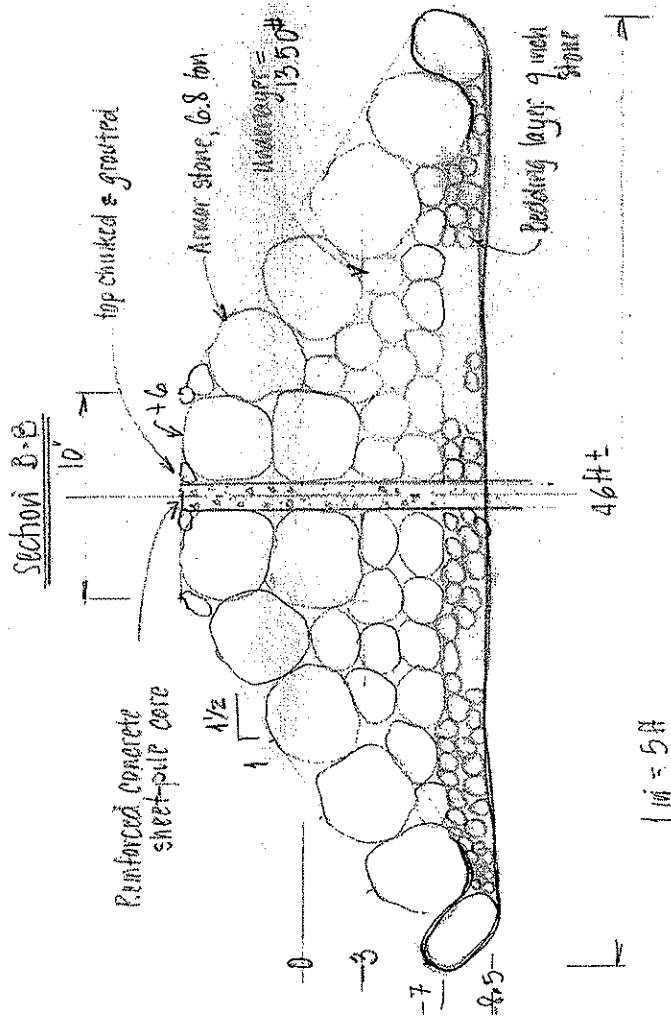
M.L.W. = ELEV. -0.61  
100 YR FLOOD ELEV. = +11.0

REPLACEMENT OF NIAN TIC RIVER  
RAILROAD BRIDGE

National Railroad Passenger Corporation (AMTRAK)  
30th Street Station, 4th Floor South  
30th & Market Streets  
Philadelphia, PA 19104

DATE: 5/15/09

SHEET 17



TIDAL DATUM (NGVD 1929)

H.T.L. = ELEV. +3.8
M.H.W. = ELEV. +1.96
M.L.W. = ELEV. -0.61
100 YR FLOOD ELEV. = +11.0

# SECTION B-B

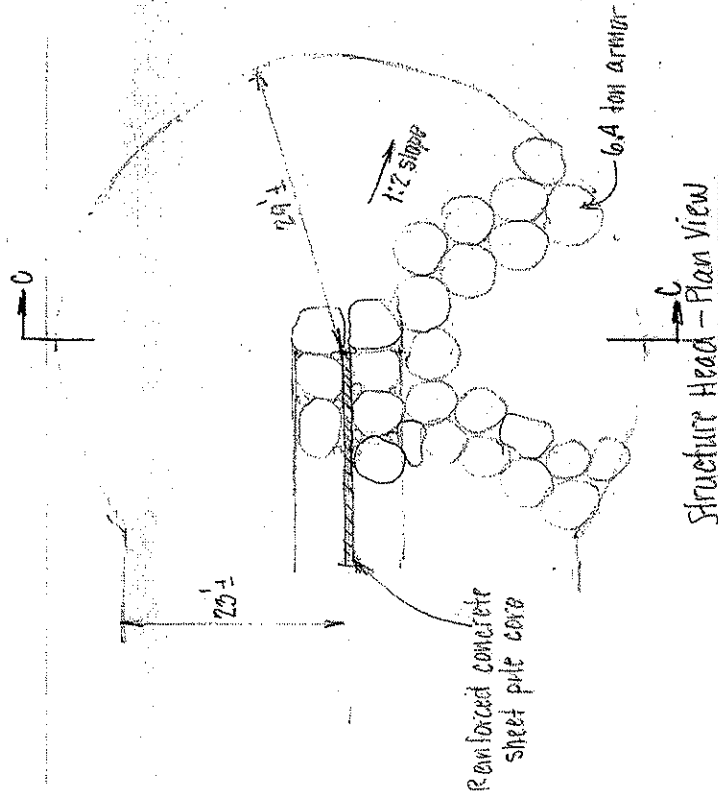
REPLACEMENT OF NIANTIC RIVER  
RAILROAD BRIDGE

East Lyme and Waterford, Connecticut

National Railroad Passenger Corporation (AMTRAK)  
30th Street Station, 4th Floor South  
30th & Market Streets  
Philadelphia, PA 19104

DATE: 5/15/09

SHEET 18



TIDAL DATUM (NGVD 1929)

H.T.L. = ELEV. +3.8

M.H.W. = ELEV. +1.96

M.L.W. = ELEV. -0.61

100 YR FLOOD ELEV. = +11.0

## STRUCTURE HEAD PLAN

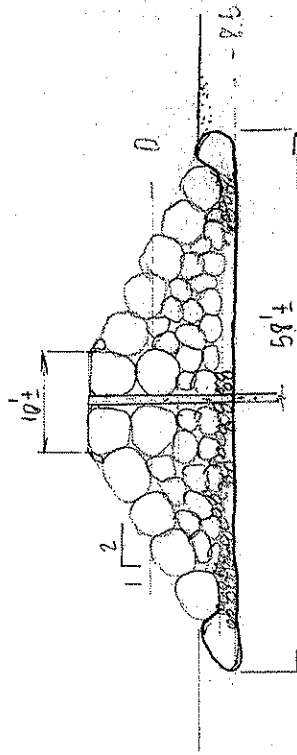
REPLACEMENT OF NIAN TIC RIVER  
RAILROAD BRIDGE

East Lyme and Waterford, Connecticut

National Railroad Passenger Corporation (AMTRAK)  
30th Street Station, 4th Floor South  
30th & Market Streets  
Philadelphia, PA 19104

DATE: 5/15/09

SHEET 19



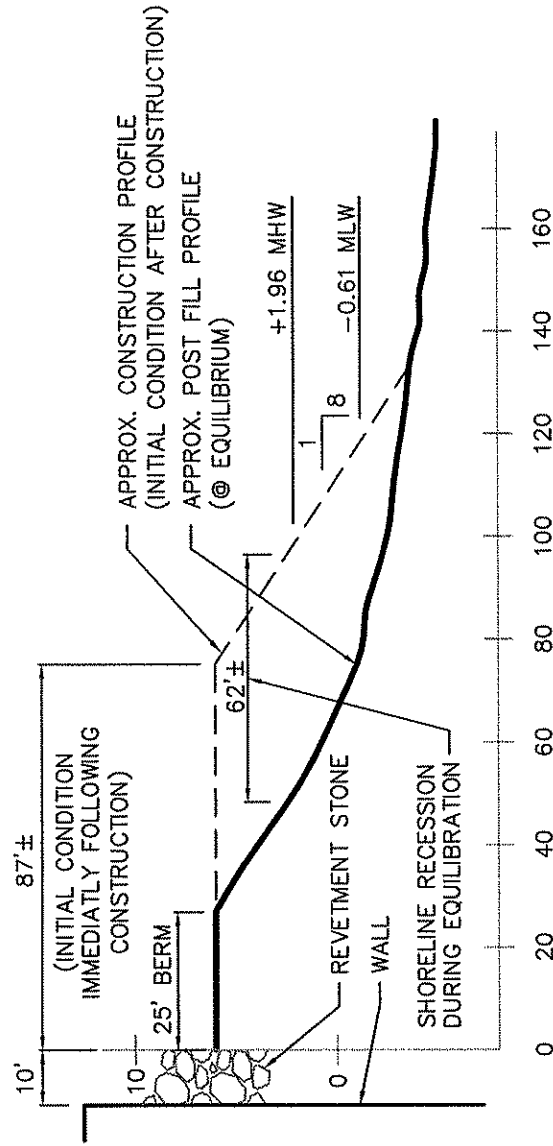
Section C-C  
Structure Head - Profile

10' = 10 ft

TIDAL DATUM (NGVD 1929)

H.T.L. = ELEV. +3.8
M.H.W. = ELEV. +1.96
M.L.W. = ELEV. -0.61
100 YR FLOOD ELEV. = +11.0

SECTION C-C	
REPLACEMENT OF NIANTIC RIVER RAILROAD BRIDGE East Lyme and Waterford, Connecticut	
National Railroad Passenger Corporation (AMTRAK) 30th Street Station, 4th Floor South 30th & Market Streets Philadelphia, PA 19104	
DATE: 5/15/09	SHEET 20



**BEACH FILL CONSTRUCTION PROFILE**  
SCALE: N.T.S.

**BEACH FILL CONSTRUCTION PROFILE**

REPLACEMENT OF NIAN TIC RIVER  
RAILROAD BRIDGE  
East Lyme and Waterford, Connecticut

National Railroad Passenger Corporation (AMTRAK)  
30th Street Station, 4th Floor South  
30th & Market Streets  
Philadelphia, PA 19104

DATE: 5/15/09

SHEET 21

EXCEPT AS NOTED  
HTL, MHW, AND MLW ARE  
THE SAME IN EXISTING AND  
PROPOSED CONDITIONS

TIDAL DATUM (NGVD 1929)

H.T.L. = ELEV. +3.8  
M.H.W. = ELEV. +1.96  
M.L.W. = ELEV. -0.61  
100 YR FLOOD ELEV. = +11.0

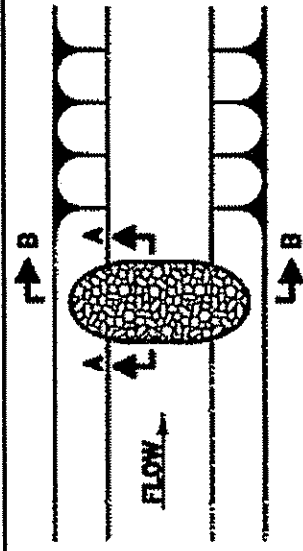


## EROSION AND SEDIMENTATION CONTROL PLAN NOTES

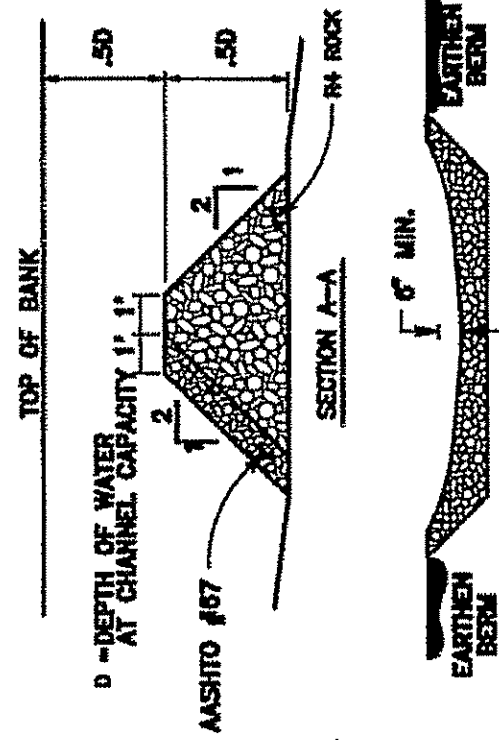
- A. EROSION AND SEDIMENTATION CONTROLS MUST BE CONSTRUCTED, STABILIZED, AND FUNCTIONAL BEFORE GENERAL SITE DISTURBANCE WITHIN THE TRIBUTARY AREAS OF THOSE CONTROLS.
- B. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENTATION CONTROLS MUST BE REMOVED. AREAS DISTURBED DURING REMOVAL OF THE CONTROLS MUST BE STABILIZED.
- C. ROCK FILTER DAMS WILL BE REMOVED WHEN CLOGGED WITH SEDIMENT. MATERIALS MUST BE WASHED COMPLETELY FREE OF ALL FOREIGN MATERIALS OR NEW ROCK USED TO REBUILD THE FILTER OR TRAP.
- D. EROSION AND SEDIMENTATION CONTROLS MUST BE PROTECTED FROM UNAUTHORIZED ACTS OF THIRD PARTIES.
- E. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE PROPER CONSTRUCTION, STABILIZATION, AND MAINTENANCE OF ALL EROSION AND SEDIMENTATION CONTROLS AND RELATED ITEMS INCLUDED WITHIN THIS PLAN.
- F. THE CONTRACTOR MUST DEVELOP, AND HAVE APPROVED BY THE BUREAU OF LAND AND WATER CONSERVATION, A SEPARATE EROSION AND SEDIMENTATION CONTROL PLAN FOR EACH SPILL, BORROW, OR OTHER WORK AREA NOT DETAILED IN THE PERMITTED PLAN, WHETHER LOCATED WITHIN OR OUTSIDE OF THE CONSTRUCTION LIMITS.
- G. SHOULD ANY MEASURES CONTAINED WITHIN THIS PLAN PROVE INCAPABLE OF ADEQUATELY REMOVING SEDIMENT FROM ON-SITE FLOWS PRIOR TO DISCHARGE OR OF STABILIZING THE SURFACES INVOLVED, ADDITIONAL MEASURES MUST BE IMMEDIATELY IMPLEMENTED BY THE CONTRACTOR TO ELIMINATE ALL SUCH PROBLEMS.
- H. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENTATION CONTROLS MUST BE MAINTAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENTATION CONTROLS AFTER EACH STORM EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REEPAVING, RESEEDING, REMULCHING, AND RESETTING, MUST BE PERFORMED IMMEDIATELY.

EROSION AND SEDIMENTATION CONTROL NOTES	
REPLACEMENT OF NIANTIC RIVER RAILROAD BRIDGE East Lyme and Waterford, Connecticut	
National Railroad Passenger Corporation(AMTRAK) 30th Street Station, 4th Floor South 30th & Market Streets Philadelphia, PA 19104	
DATE: 5/15/09	SHEET 23





PLAN VIEW



D - DEPTH OF WATER AT CHANNEL CAPACITY 1' 1"

AASHITO #67

SECTION A-A

6" MIN.

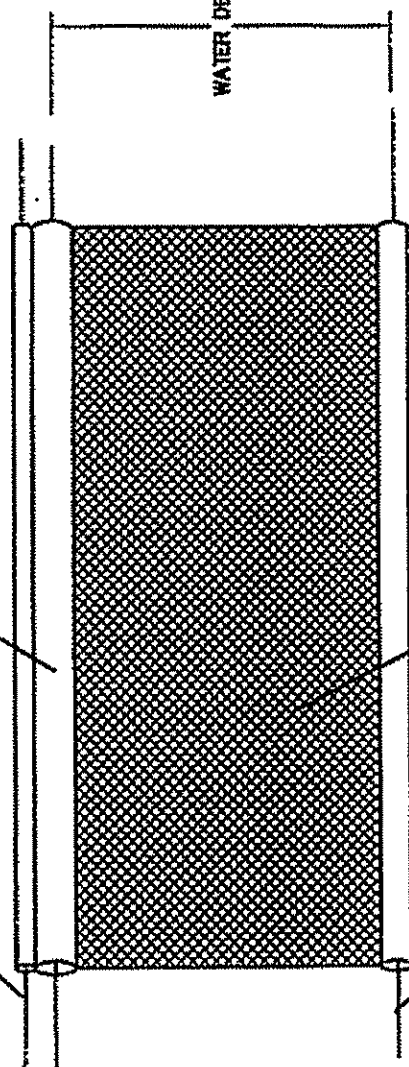
SECTION B-B

# **ROCK FILTER DAM**

TENSION MEMBER

FLOTATION DEVICE

WSE



PERVIOUS FILTER SCREEN

LOAD LINE

# **TURBIDITY CURTAIN (TYP.)**

NO SCALE

TURBIDITY CURTAIN TO MEET CONNECTICUT DEP CLASS IV STANDARDS

EROSION & SEDIMENT CONTROL DETAILS

REPLACEMENT OF NIANTIC RIVER RAILROAD BRIDGE

East Lyme and Waterford, Connecticut

National Railroad Passenger Corporation (AMTRAK)

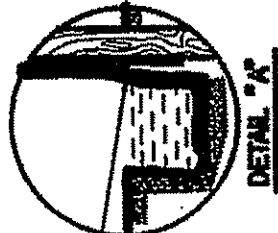
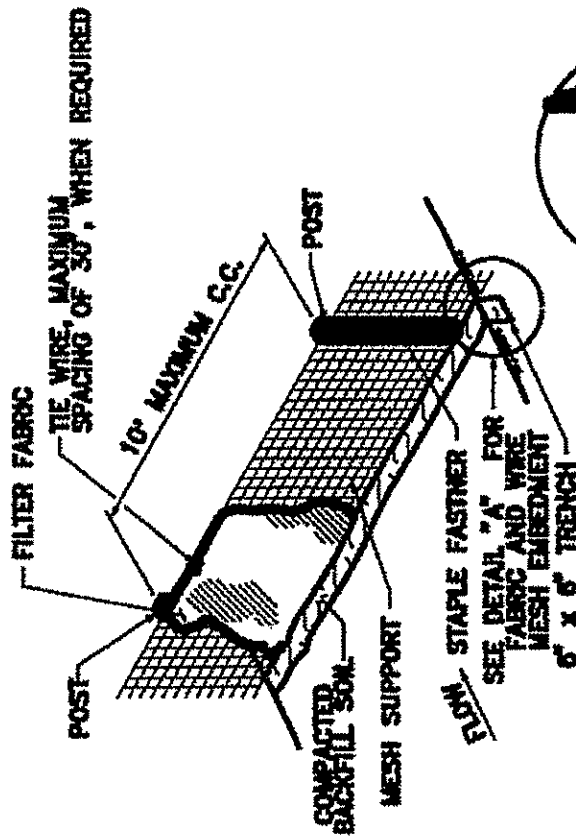
30th Street Station, 4th Floor South

30th & Market Streets

Philadelphia, PA 19104

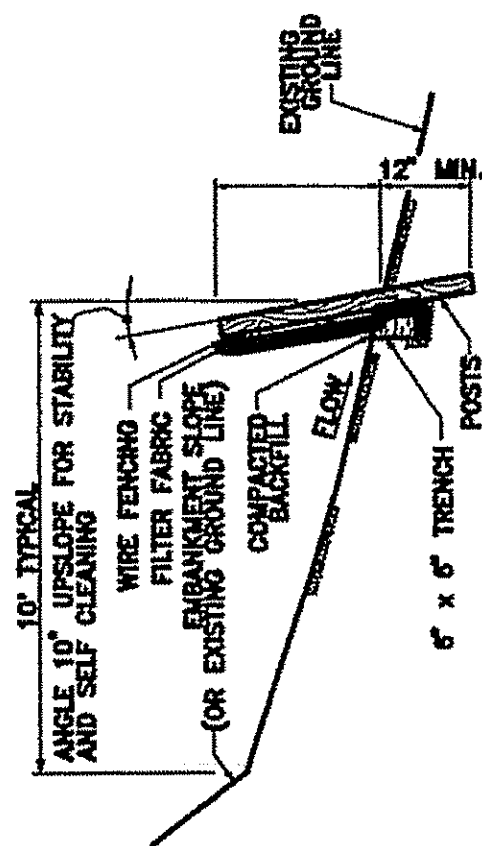
DATE: 5/15/09

SHEET 24



EXTEND FILTER FABRIC 6" INTO EXCAVATED TRENCH. EXTEND WIRE MESH A MINIMUM OF 2' INTO TRENCH.

SEE CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL (2002) FOR ADDITIONAL FILTER FENCE REQUIREMENTS.



**NOTES:**

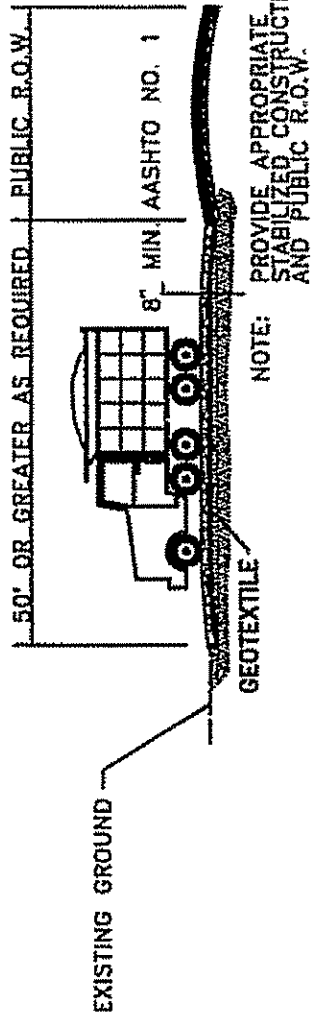
1. SYNTHETIC FILTER FABRIC SHALL BE A PERVIOUS SHEET OF PROPYLENE, NYLON, POLYESTER OR ETHYLENE FILAMENTS AND SHALL BE CERTIFIED BY THE MANUFACTURER OR SUPPLIER AS CONFORMING TO THE FOLLOWING REQUIREMENTS:

PHYSICAL PROPERTY	REQUIREMENTS
FILTERING EFFICIENCY	75% (MIN.)
TENSILE STRENGTH AT 20% (MAX.) ELONGATION	EXTRA STRENGTH - 50 lbs./lin. in. (MIN.) STANDARD STRENGTH - 30 lbs./lin. in. (MIN.)
FLOW RATE	0.3 gal./sq. ft./ (MIN.)

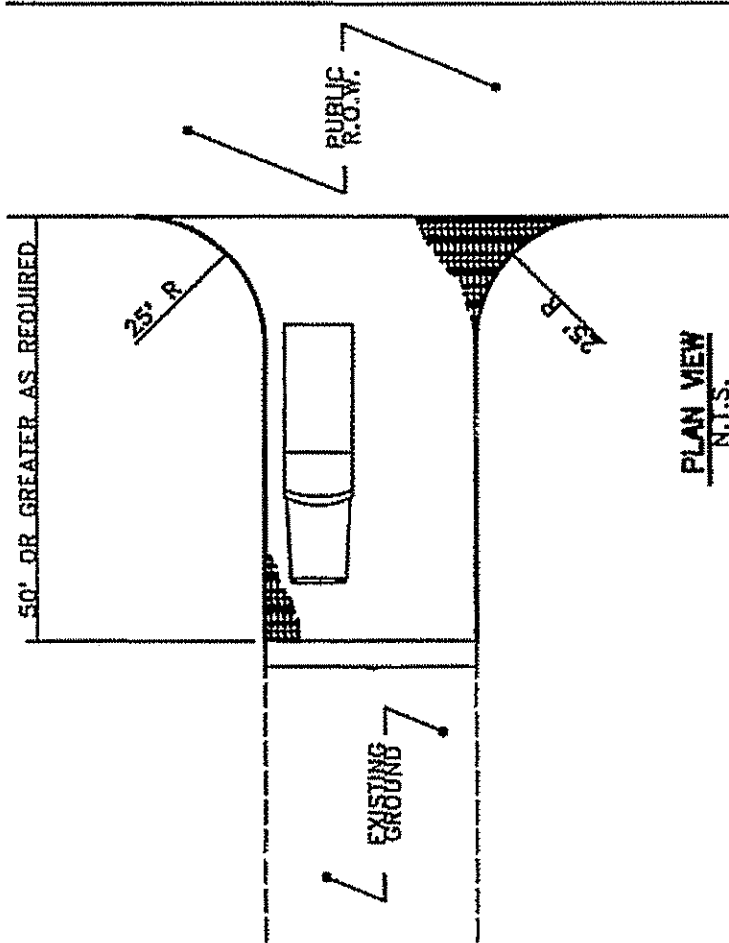
2. PROVIDE FILTER FABRIC ALONG ALL INTERFACE AREAS WITH GROUND CONTACT.

# **EROSION CONTROL FENCE DETAILS** N.T.S.

EROSION CONTROL FENCE DETAILS	
REPLACEMENT OF NIANTIC RIVER RAILROAD BRIDGE	
East Lyme and Waterford, Connecticut	
National Railroad Passenger Corporation (AMTRAK) 30th Street Station, 4th Floor South 30th & Market Streets Philadelphia, PA 19104	
DATE: 5/15/09	SHEET 25



PROFILE  
N.T.S.

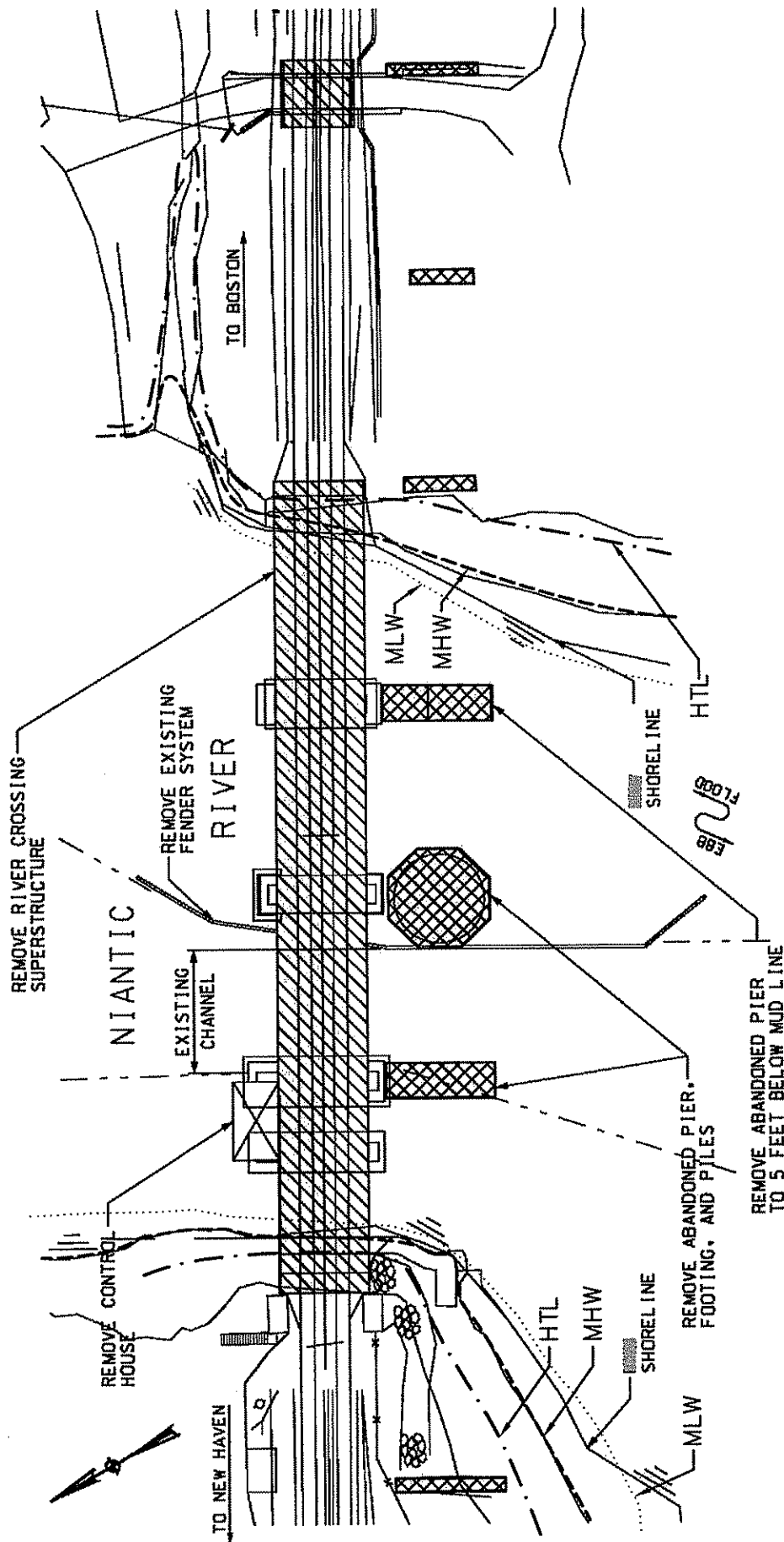


PLAN VIEW  
N.T.S.

# STABILIZED CONSTRUCTION ENTRANCE

LOCATIONS: WEST APPROACH GRADE XING  
 NEW WEST APPROACH ACCESS ROAD  
 U.G. BRIDGE 118.79  
 MILLSTONE ROAD TEMP ACCESS

STABILIZED CONSTRUCTION ENTRANCE	
REPLACEMENT OF NIANTIC RIVER RAILROAD BRIDGE East Lyme and Waterford, Connecticut	
National Railroad Passenger Corporation (AMTRAK) 30th Street Station, 4th Floor South 30th & Market Streets Philadelphia, PA 19104	
DATE: 5/15/09	SHEET 26



PLAN VIEW  
SCALE 1"=60'

# KEY



ABANDONED BRIDGE PIERS



EXISTING BRIDGE

EXCEPT AS NOTED  
HTL, MHW, AND MLW ARE  
THE SAME IN EXISTING AND  
PROPOSED CONDITIONS

TIDAL DATUM (NGVD 1929)

H.T.L. = ELEV. +3.8

M.H.W. = ELEV. +1.96

M.L.W. = ELEV. -0.61

100 YR FLOOD ELEV. = +11.0

EXISTING BRIDGE DEMO PLAN

REPLACEMENT OF NIAN TIC RIVER  
RAILROAD BRIDGE

East Lyme and Waterford, Connecticut

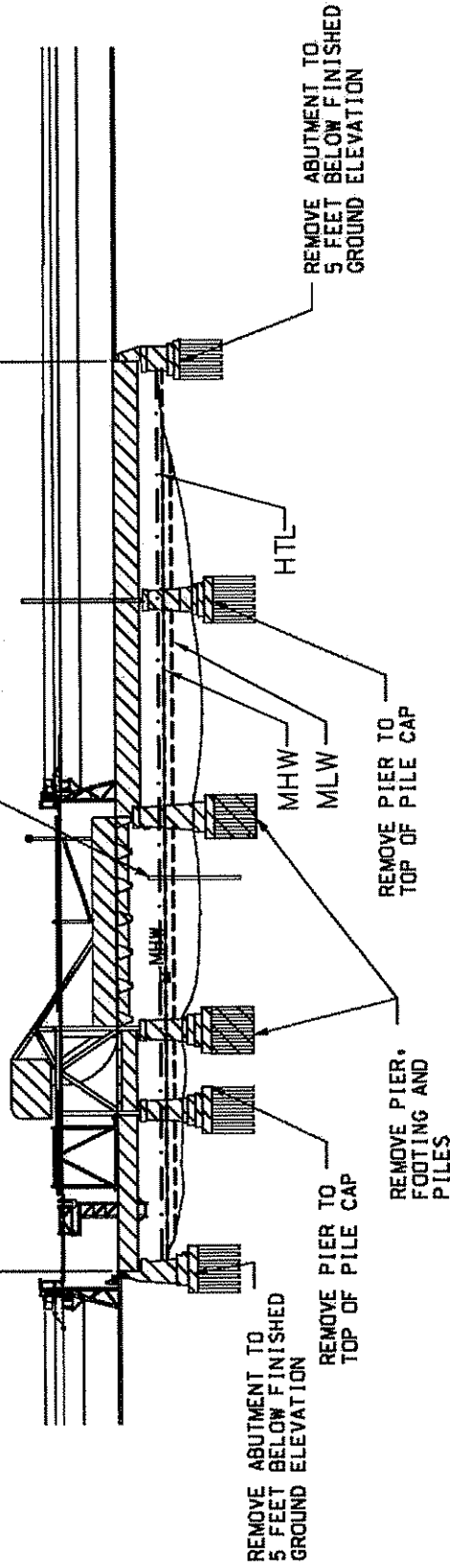
National Railroad Passenger Corporation (AMTRAK)  
30th Street Station, 4th Floor South  
30th & Market Streets  
Philadelphia, PA 19104

DATE: 5/15/09

SHEET 27

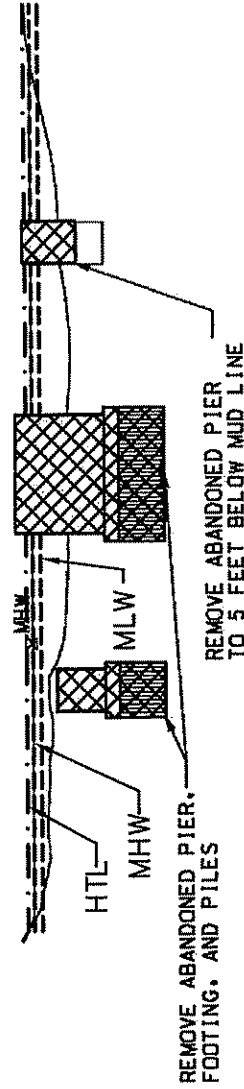
REMOVE RIVER CROSSING SUPERSTRUCTURE AND CATENARY

REMOVE EXISTING  
FENDER SYSTEM



EXISTING BRIDGE ELEVATION

SCALE 1"=60'



EXISTING ABANDONED PIER ELEVATION

SCALE 1"=60'

KEY



ABANDONED BRIDGE PIERS



EXISTING BRIDGE

EXCEPT AS NOTED  
HTL, MHW, AND MLW ARE  
THE SAME IN EXISTING AND  
PROPOSED CONDITIONS

TIDAL DATUM (NGVD 1929)

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100 YR FLOOD ELEV. = +11.0

EXISTING BRIDGE DEMO ELEVATIONS

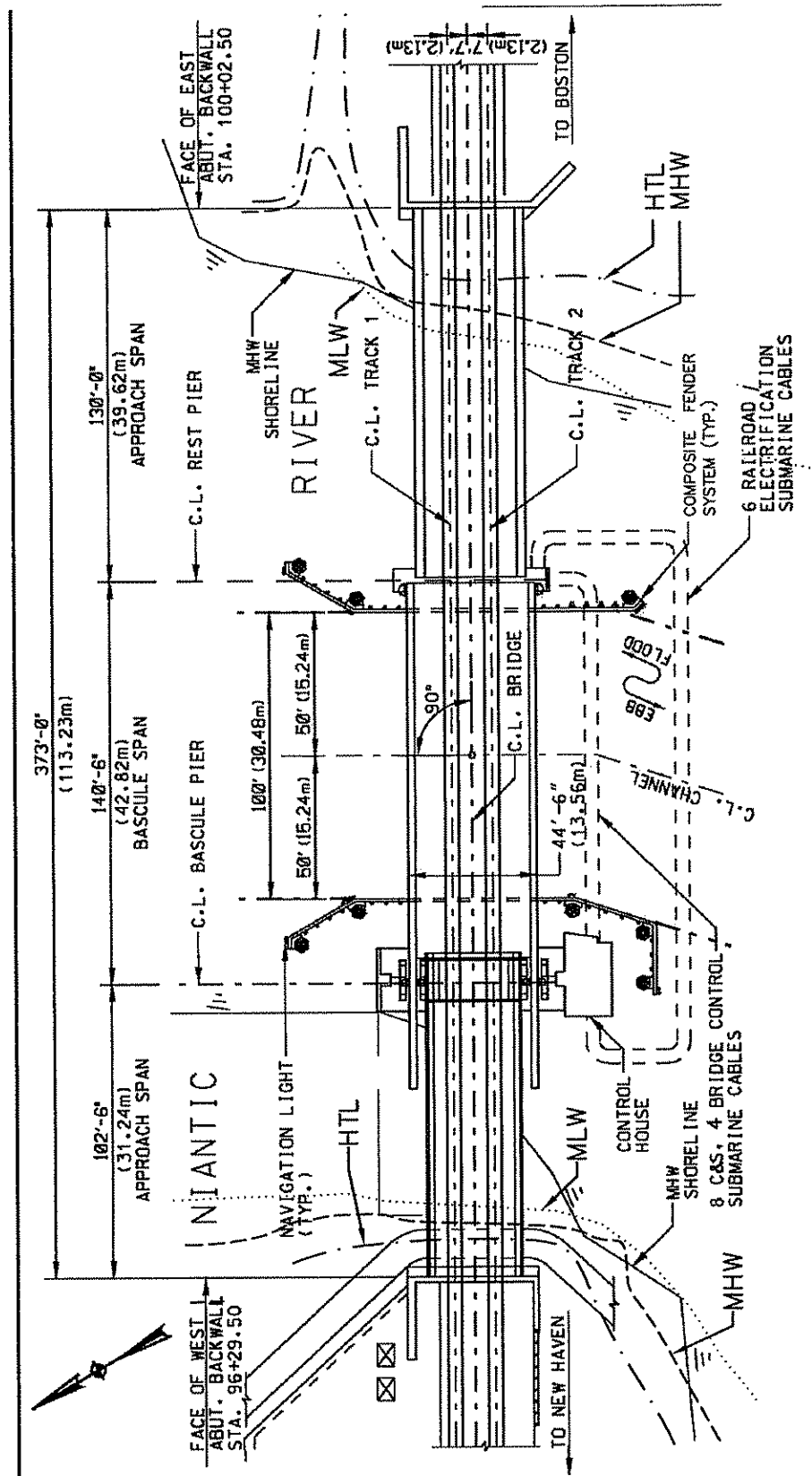
REPLACEMENT OF NIANTIC RIVER  
RAILROAD BRIDGE

East Lyme and Waterford, Connecticut

National Railroad Passenger Corporation (AMTRAK)  
30th Street Station, 4th Floor South  
30th & Market Streets  
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DATE: 5/15/09

SHEET 28

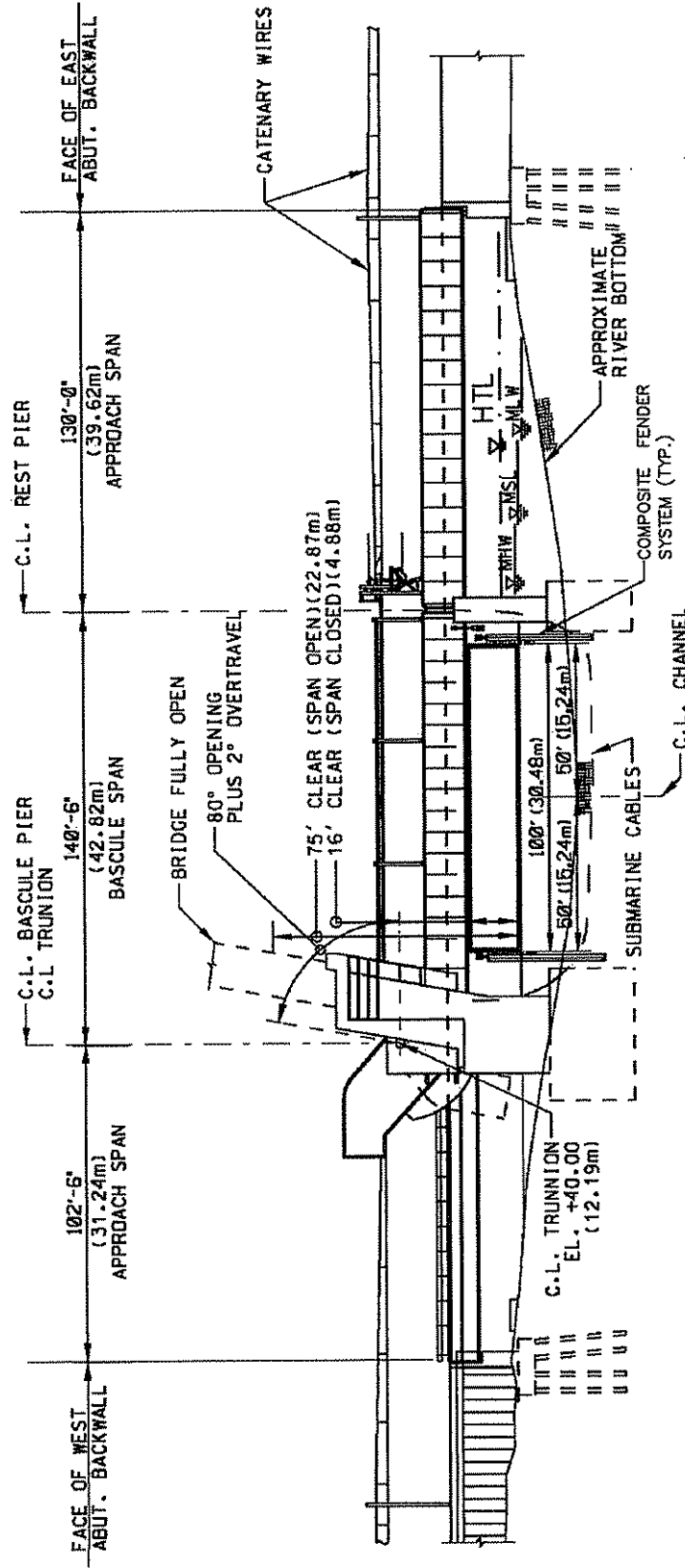


PLAN VIEW  
SCALE 1"=60'

EXCEPT AS NOTED  
HTL, MHW, AND MLW ARE  
THE SAME IN EXISTING AND  
PROPOSED CONDITIONS

TIDAL DATUM (NGVD 1929)  
H.T.L. = ELEV. +3.8  
M.H.W. = ELEV. +1.96  
M.L.W. = ELEV. -0.61  
100 YR FLOOD ELEV. = +11.0

PROPOSED BRIDGE PLAN	
REPLACEMENT OF NIAN TIC RIVER RAILROAD BRIDGE	
East Lyme and Waterford, Connecticut	
National Railroad Passenger Corporation (AMTRAK)	
30th Street Station, 4th Floor South	
30th & Market Streets	
Philadelphia, PA 19104	
DATE: 5/15/09	SHEET 29



ELEVATION  
SCALE 1"=60'

# PROPOSED BRIDGE ELEVATIONS

REPLACEMENT OF NIANTIC RIVER  
RAILROAD BRIDGE

East Lyme and Waterford, Connecticut

National Railroad Passenger Corporation (AMTRAK)  
30th Street Station, 4th Floor South  
30th & Market Streets  
Philadelphia, PA 19104

DATE: 5/15/09

SHEET 30

EXCEPT AS NOTED  
HTL, MHW, AND MLW ARE  
THE SAME IN EXISTING AND  
PROPOSED CONDITIONS

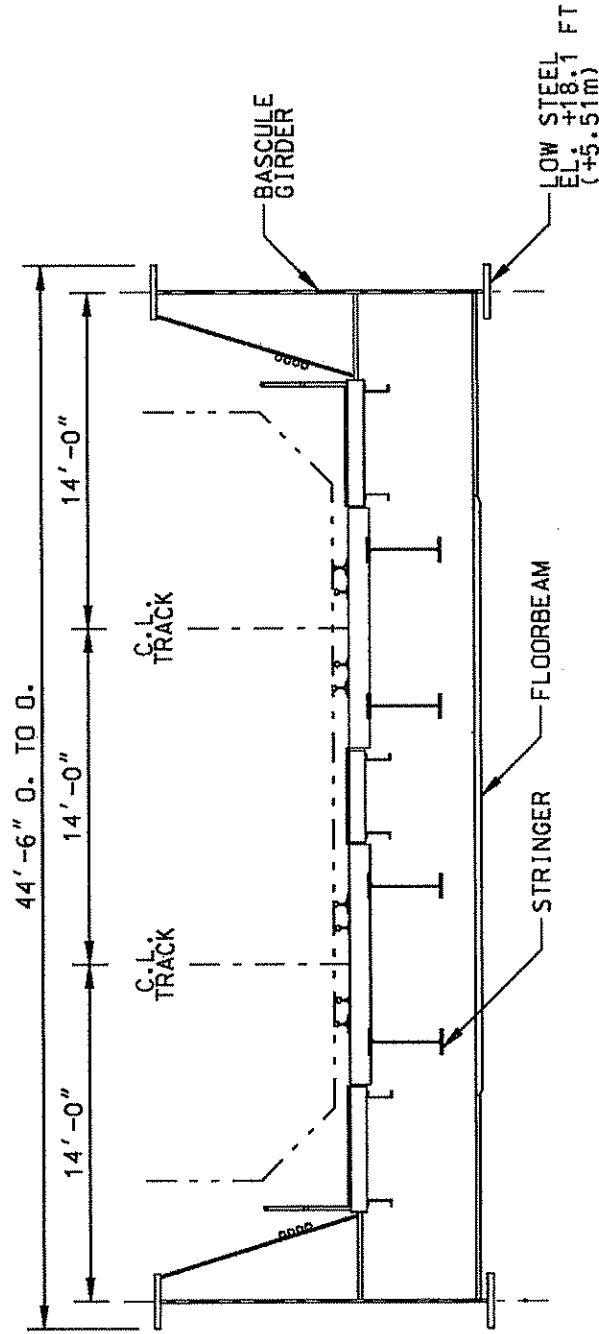
TIDAL DATUM (NGVD 1929)

H.T.L. = ELEV. +3.8

M.H.W. = ELEV. +1.96

M.L.W. = ELEV. -0.61

100 YR FLOOD ELEV. = +11.0



BRIDGE CROSS SECTION  
SCALE 1/8"=1'-0"

EXCEPT AS NOTED  
HTL, MHW, AND MLW ARE  
THE SAME IN EXISTING AND  
PROPOSED CONDITIONS

TIDAL DATUM (NGVD 1929)

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M.H.W. = ELEV. +1.96  
M.L.W. = ELEV. -0.61  
100 YR FLOOD ELEV. = +11.0

PROPOSED BRIDGE SECTION

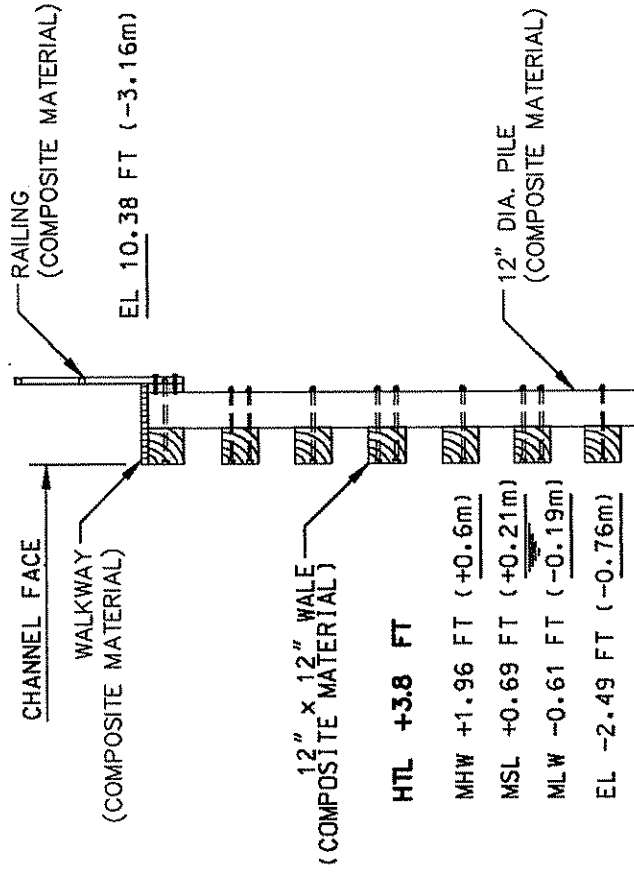
REPLACEMENT OF NIANTIC RIVER  
RAILROAD BRIDGE  
East Lyme and Waterford, Connecticut

National Railroad Passenger Corporation (AMTRAK)  
30th Street Station, 4th Floor South  
30th & Market Streets  
Philadelphia, PA 19104

DATE: 5/15/09

SHEET 31





# FENDER SYSTEM SCALE 1/8"=1'-0"

## FENDER DETAIL

REPLACEMENT OF NIAN TIC RIVER  
RAILROAD BRIDGE  
East Lyme and Waterford, Connecticut

National Railroad Passenger Corporation (AMTRAK)  
30th Street Station, 4th Floor South  
30th & Market Streets  
Philadelphia, PA 19104

DATE: 5/15/09

SHEET 32

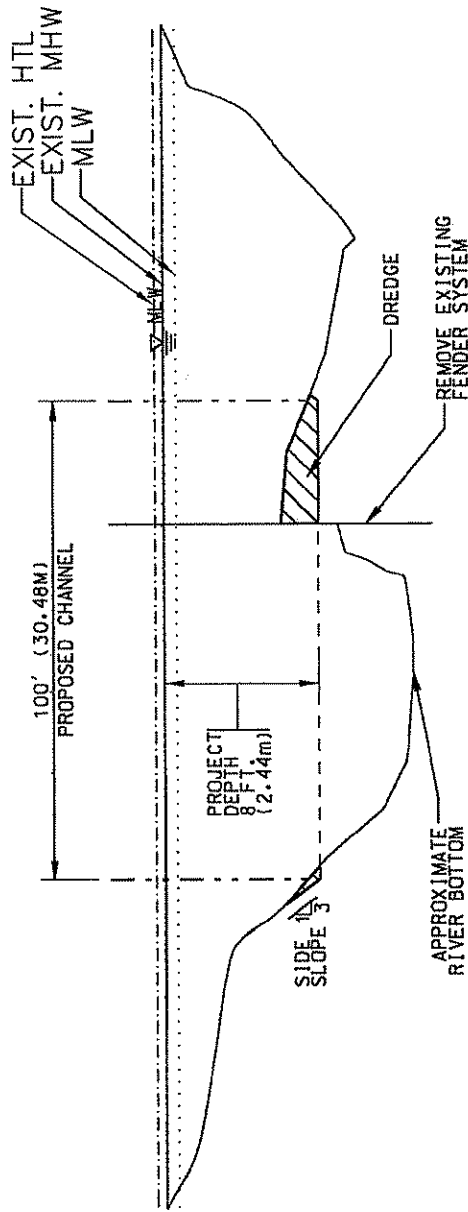
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TIDAL DATUM (NGVD 1929)

H.T.L. = ELEV. +3.8  
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M.L.W. = ELEV. -0.61  
100 YR FLOOD ELEV. = +11.0



DATE: 5/15/09	SHEET 33
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## CHANNEL DREDGING TYPICAL SECTION

PLAN VIEW  
SCALE 1" = 40'

### CHANNEL DREDGING SECTION

REPLACEMENT OF NIAN TIC RIVER  
RAILROAD BRIDGE  
East Lyme and Waterford, Connecticut

National Railroad Passenger Corporation (AMTRAK)  
30th Street Station, 4th Floor South  
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Philadelphia, PA 19104

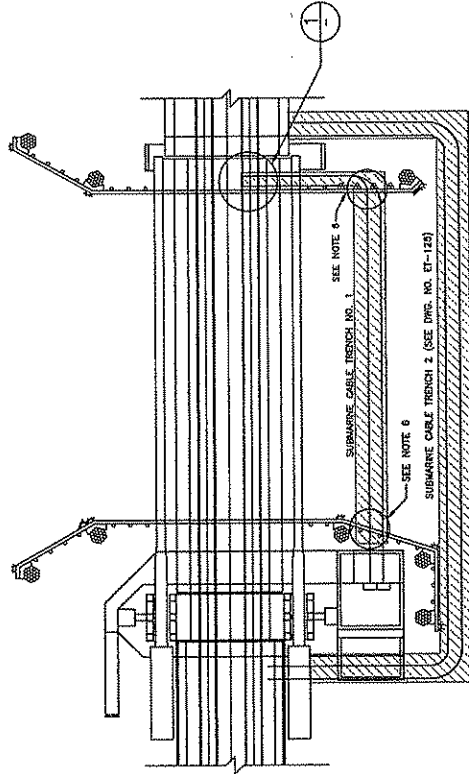
DATE: 5/15/09

SHEET 34

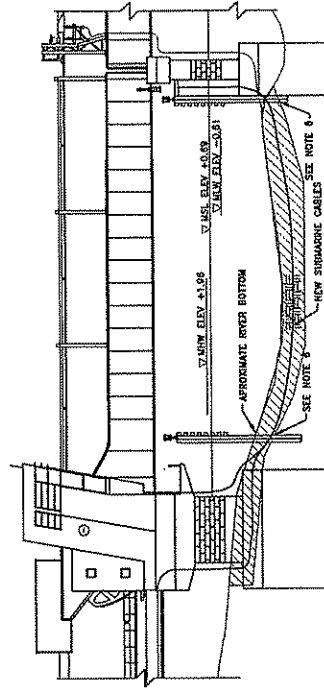
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PROPOSED CONDITIONS

TIDAL DATUM (NGVD 1929)

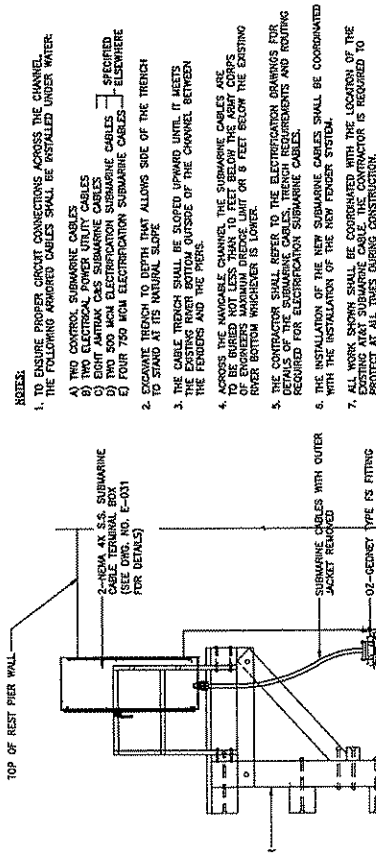
H.T.L. = ELEV. +3.8  
M.H.W. = ELEV. +1.96  
M.L.W. = ELEV. -0.61  
100 YR FLOOD ELEV. = +11.0



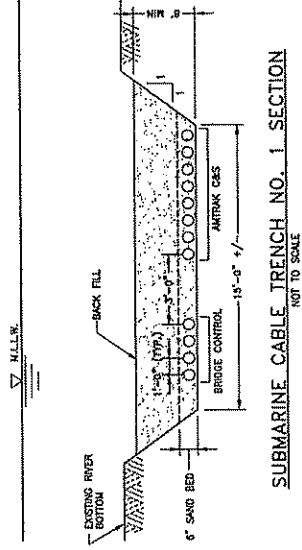
GENERAL PLAN  
SIZE OF TRENCH NOT SHOWN TO SCALE



GENERAL ELEVATION  
SIZE OF TRENCH NOT SHOWN TO SCALE



DETAIL  
1  
1" = 10'



SUBMARINE CABLE TRENCH NO. 1 SECTION  
NOT TO SCALE

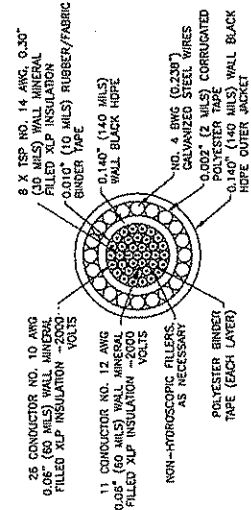
- NOTES:
1. TO ENSURE PROPER CIRCUIT CONNECTIONS ACROSS THE CHANNEL, THE FOLLOWING ARMORED CABLES SHALL BE INSTALLED UNDER WATER.
    - A) TWO CONTROL SUBMARINE CABLES
    - B) TWO 500 MCM SUBMARINE CABLES
    - C) EIGHT AMTRAK C/S SUBMARINE CABLES
    - D) TWO 500 MCM ELECTRIFICATION SUBMARINE CABLES
    - E) FOUR 750 MCM ELECTRIFICATION SUBMARINE CABLES
  2. EXCAVATE TRENCH TO DEPTH THAT ALLOWS SIDE OF THE TRENCH TO STAND AT ITS NATURAL SLOPE.
  3. THE CABLE TRENCH SHALL BE SLOPED UPWARD UNTIL IT MEETS THE EXISTING RIVER BOTTOM OUTSIDE OF THE CHANNEL BETWEEN THE PIER AND THE PIER.
  4. ACROSS THE NAVIGABLE CHANNEL, THE SUBMARINE CABLES ARE TO BE INSTALLED IN A TRENCH THAT IS DEEPER THAN THE EXISTING RIVER BOTTOM WHICHEVER IS LOWER.
  5. THE CONTRACTOR SHALL REFER TO THE ELECTRIFICATION DRAWINGS FOR DETAILS OF THE SUBMARINE CABLES, TRENCH REQUIREMENTS AND ROUTING REQUIRED FOR ELECTRIFICATION SUBMARINE CABLES.
  6. THE INSTALLATION OF THE NEW SUBMARINE CABLES SHALL BE COORDINATED WITH THE INSTALLATION OF THE NEW FENDER SYSTEM.
  7. ALL WORK SHOWN SHALL BE COORDINATED WITH THE LOCATION OF THE EXISTING AT&T SUBMARINE CABLE. THE CONTRACTOR IS REQUIRED TO PROTECT AT ALL TIMES EXISTING CONDUITS.

SUBMARINE CABLE PLAN & SECTIONS	
REPLACEMENT OF NIANTIC RIVER RAILROAD BRIDGE	
East Lyme and Waterford, Connecticut	
National Railroad Passenger Corporation (AMTRAK) 30th Street Station, 4th Floor South 30th & Market Streets Philadelphia, PA 19104	
DATE: 5/15/09	SHEET 35

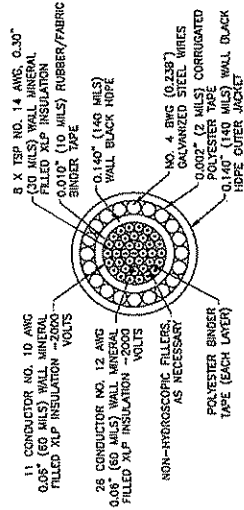
EXCEPT AS NOTED  
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THE SAME IN EXISTING AND  
PROPOSED CONDITIONS

TIDAL DATUM (NGVD 1929)

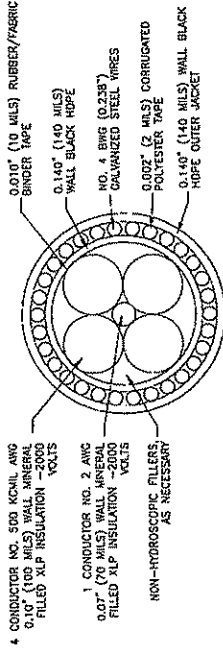
H.T.L. = ELEV. +3.8  
M.H.W. = ELEV. +1.96  
M.L.W. = ELEV. -0.61  
100 YR FLOOD ELEV. = +11.0



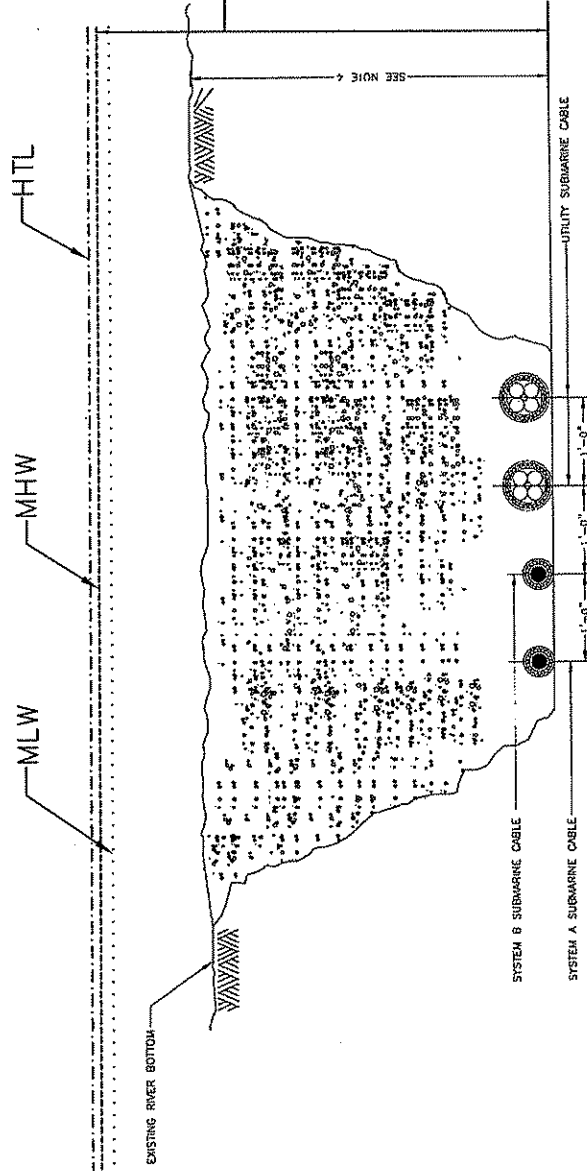
SYSTEM 1 SUBMARINE CABLE



SYSTEM 2 SUBMARINE CABLE



UTILITY SUBMARINE CABLE 1 & 2



NEW SUBMARINE CABLE TRENCH DETAIL

AMTRAK CAS AND ELECTRIFICATION SUBMARINE CABLES NOT SHOWN

EXCEPT AS NOTED  
HTL, MHW, AND MLW ARE  
THE SAME IN EXISTING AND  
PROPOSED CONDITIONS

TIDAL DATUM (NGVD 1929)

H.T.L. = ELEV. +3.8

M.H.W. = ELEV. +1.96

M.L.W. = ELEV. -0.61

100 YR FLOOD ELEV. = +11.0

NOTES:

1. TO ENSURE PROPER CIRCUT CONNECTIONS ACROSS THE CHANNEL, THE FOLLOWING ARMORED CABLES SHALL BE INSTALLED UNDER WATER:  
A) TWO CONTROL SUBMARINE CABLES  
B) ONE ELECTRICAL POWER UTILITY CABLE  
C) AMTRAK CAS SUBMARINE CABLES  
D) TWO 500 MCM ELECTRIFICATION SUBMARINE CABLES  
E) FOUR 750 MCM ELECTRIFICATION SUBMARINE CABLES
2. EXCAVATE TRENCH TO DEPTH THAT ALLOWS SIDE OF THE TRENCH TO STAND AT ITS NATURAL SLOPE
3. THE CABLE TRENCH SHALL BE SLOPED UPWARD UNTIL IT MEETS THE EXISTING RIVER BOTTOM OUTSIDE OF THE CHANNEL BETWEEN THE FENDERS AND THE PIERS.
4. ACROSS THE NAVIGABLE CHANNEL THE SUBMARINE CABLES ARE TO BE BURIED NOT LESS THAN 7 FEET BELOW THE ARMY CORPS OF ENGINEERS MAXIMUM DREDGE LIMIT (-10 FEET BELOW M.L.W.) OR 7 FEET BELOW THE EXISTING RIVER BOTTOM WHICHEVER IS LOWER.
5. SEE DWG ET-100 FOR ELECTRIFICATION SUBMARINE CABLE ROUTING.
6. CAS SUBMARINE CABLES SHALL BE ROUTED IN THE SAME TRENCH AS THE BRIDGE CONTROL SUBMARINE CABLES IN A SHALOW ARRANGEMENT AS SHOWN ON THIS DRAWING.

WITHIN CHANNEL: THE DEEPER  
OF 18' OR 7' BELOW EXISTING  
BOTTOM OF CHANNEL

SUBMARINE CABLE TYPICAL SECTION

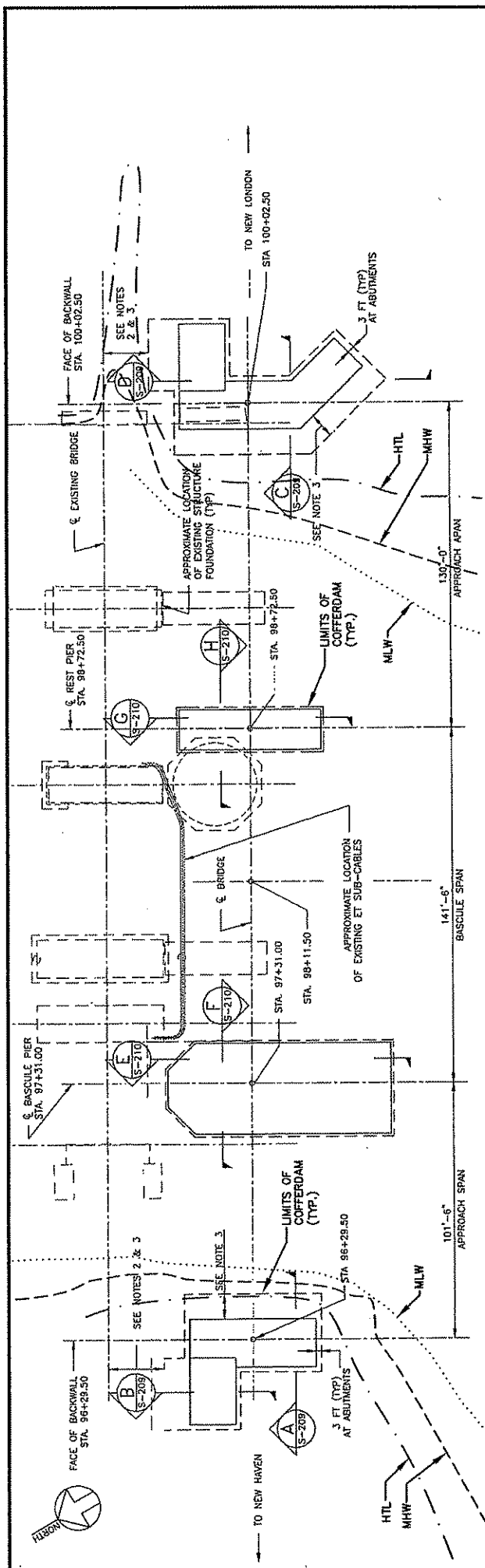
REPLACEMENT OF NIANTIC RIVER  
RAILROAD BRIDGE

East Lyme and Waterford, Connecticut

National Railroad Passenger Corporation (AMTRAK)  
30th Street Station, 4th Floor South  
30th & Market Streets  
Philadelphia, PA 19104

DATE: 5/15/09

SHEET 36

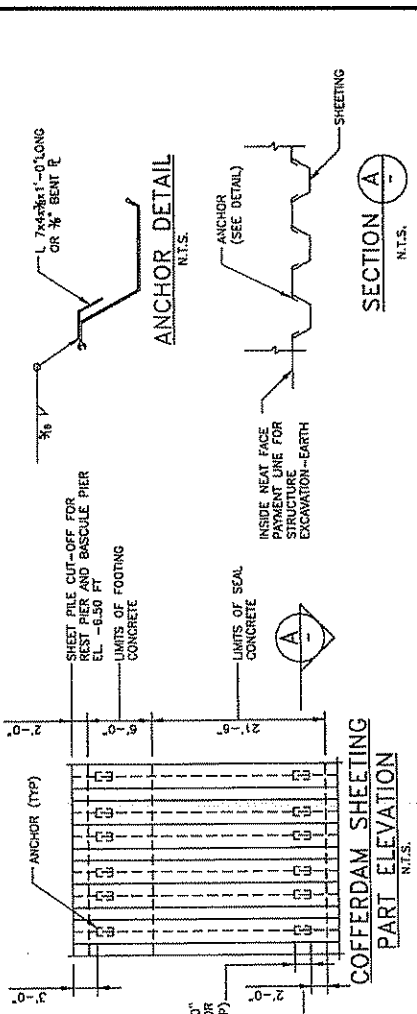


FOUNDATION PLAN  
SCALE 1"=60'



NOTES:

1. THE BASCULE AND REST PIERS SHALL BE CONSTRUCTED WITHIN COFFERDAMS. THE WEST AND EAST ABUTMENTS SHALL BE CONSTRUCTED IN THE DRY. AFTER THE PILES ARE DRIVEN AND ACCEPTED, COFFERDAMS AND PUMPING SHALL MEAN ANY TEMPORARY OR PERMANENT TYPE OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ANY EXISTING UTILITIES AND OTHER TEMPORARY EMBANKMENT RETAINING MEANS USED TO CONSTRUCT THE ABUTMENTS AND THE ADJACENT WINGWALLS SHALL BE INCLUDED IN THIS ITEM OF WORK. SEE SPECIFICATIONS FOR COFFERDAMS AND PUMPING REQUIREMENTS.
2. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE REQUIREMENTS FOR SHORING AND BRACING OF THE COFFERDAMS AND SUPPORT ANTRAK TRACKS. THE SHEET PILING ON THE NORTH SIDE OF BOTH PROPOSED ABUTMENTS EXTENDS BELOW THE THEORETICAL UNDERGROUND TRACK DISTURBANCE LINE. INTERLOCKING STEEL SHEETING ADEQUATELY BRACED AND DESIGNED TO RESIST THE FULL WEIGHT OF THE COFFERDAM SHALL BE USED IN THESE AREAS. SHEETING IN THIS AREA SHALL NOT BE PILED BUT SHALL BE LEFT IN PLACE AND CUT OFF AT LEAST 18 INCHES BELOW FINAL GROUND LINE AT THE SHEETING AND NO HIGHER THAN 24" BELOW THE ELEVATION OF THE BOTTOM OF THE NEAREST TIES.
3. THE FRONT ROW PILES OF ALL ABUTMENTS AND WINGWALLS SHALL BE BRACED TO THE EXISTING STRUCTURE OR TO THE EXISTING ABUTMENTS/WINGWALLS TO AVOID INTERFERENCE WITH SETBACK PILES. THE CONTRACTOR IS ALERTED THAT SETBACK DISTANCE AT THE NORTH WINGWALLS IS LIMITED DUE TO EXISTING CONSTRUCTION. SEE CONTRACT SPECIFICATIONS FOR SHORING AND BRACING AND SHORING REQUIRED TO SUPPORT ANTRAK TRACKS.



**BRIDGE FOOTING PLAN**

**REPLACEMENT OF NIANTIC RIVER RAILROAD BRIDGE**

East Lyme and Waterford, Connecticut

National Railroad Passenger Corporation (AMTRAK)

30th Street Station, 4th Floor South

30th & Market Streets

Philadelphia, PA 19104

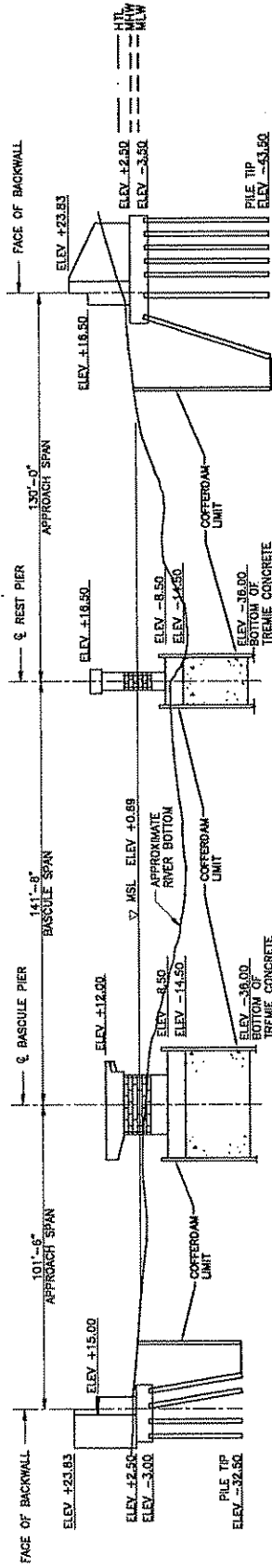
DATE: 5/15/09

SHEET 37

EXCEPT AS NOTED  
HTL, MHW, AND MLW ARE  
THE SAME IN EXISTING AND  
PROPOSED CONDITIONS

TIDAL DATUM (NGVD 1929)

H.T.L. = ELEV. +3.8  
M.H.W. = ELEV. +1.96  
M.L.W. = ELEV. -0.61  
100 YR FLOOD ELEV. = +11.0



# FOUNDATION ELEVATION (LOOKING NORTH)

SCALE 1" = 60'

## BRIDGE FOOTING ELEVATION

REPLACEMENT OF NIANTIC RIVER  
RAILROAD BRIDGE  
East Lyme and Waterford, Connecticut

National Railroad Passenger Corporation (AMTRAK)  
30th Street Station, 4th Floor South  
Philadelphia, PA 19104

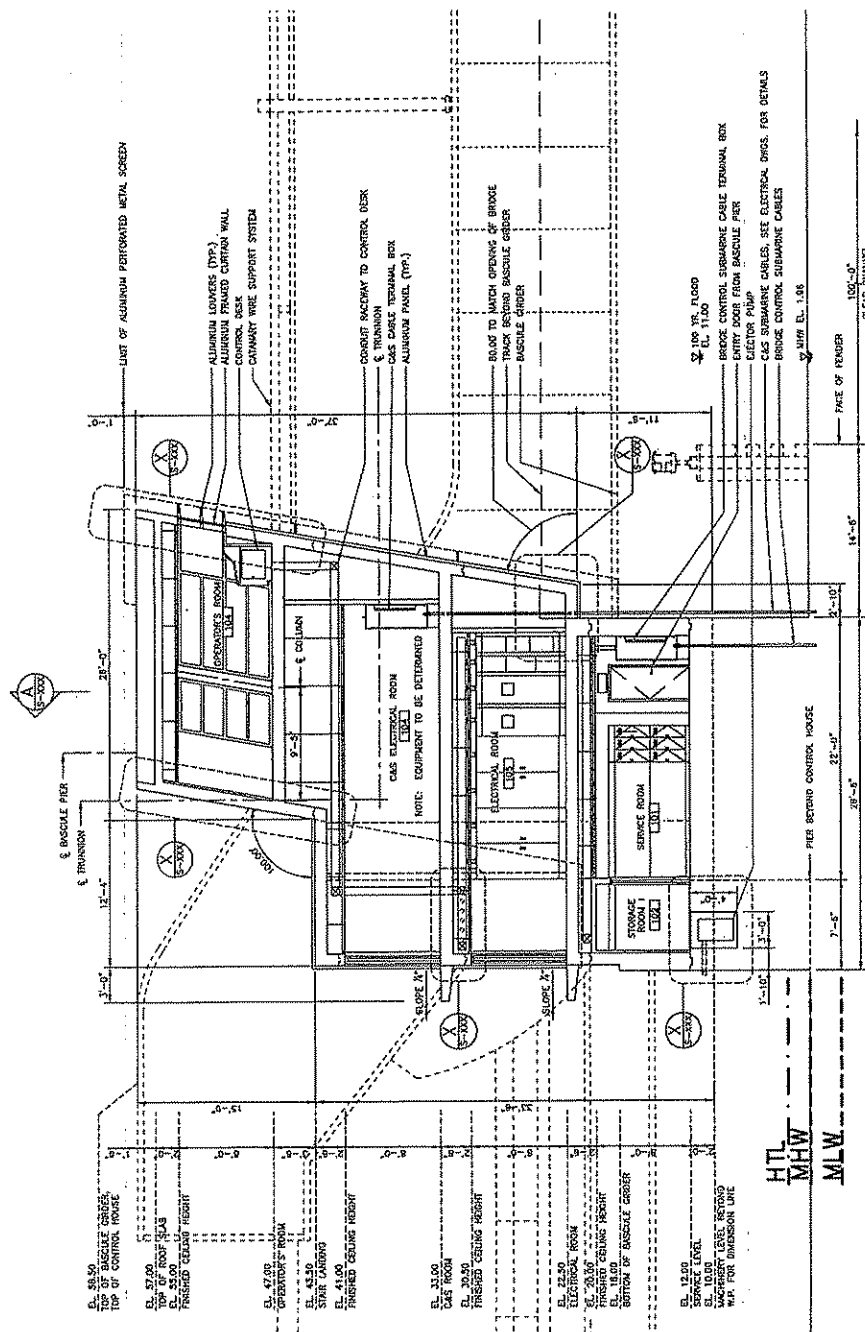
DATE: 5/15/09

SHEET 38

EXCEPT AS NOTED  
HTL, MHW, AND MLW ARE  
THE SAME IN EXISTING AND  
PROPOSED CONDITIONS

TIDAL DATUM (NGVD 1929)

H.T.L. = ELEV. +3.8  
M.H.W. = ELEV. +1.96  
M.L.W. = ELEV. -0.61  
100 YR FLOOD ELEV. = +11.0



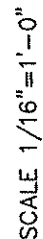
SCALE 1/16"=1'-0"

EXCEPT AS NOTED  
HTL, MHW, AND MLW ARE  
THE SAME IN EXISTING AND  
PROPOSED CONDITIONS

TIDAL DATUM (NGVD 1929)  
H.T.L. = ELEV. +3.8  
M.H.W. = ELEV. +1.96  
M.L.W. = ELEV. -0.61  
100 YR FLOOD ELEV. = +11.0

CONTROL HOUSE SECTION 1	
REPLACEMENT OF NIANTIC RIVER RAILROAD BRIDGE	
East Lyme and Waterford, Connecticut	
National Railroad Passenger Corporation (AMTRAK) 30th Street Station, 4th Floor South 30th & Market Streets Philadelphia, PA 19104	
DATE: 5/15/09	SHEET 39





EXCEPT AS NOTED  
HTL, MHW, AND MLW ARE  
THE SAME IN EXISTING AND  
PROPOSED CONDITIONS

TIDAL DATUM (NGVD 1929)

H.T.L. = ELEV. +3.8  
M.H.W. = ELEV. +1.96  
M.L.W. = ELEV. -0.61  
100 YR FLOOD ELEV. =

## CONTROL HOUSE SECTION 2

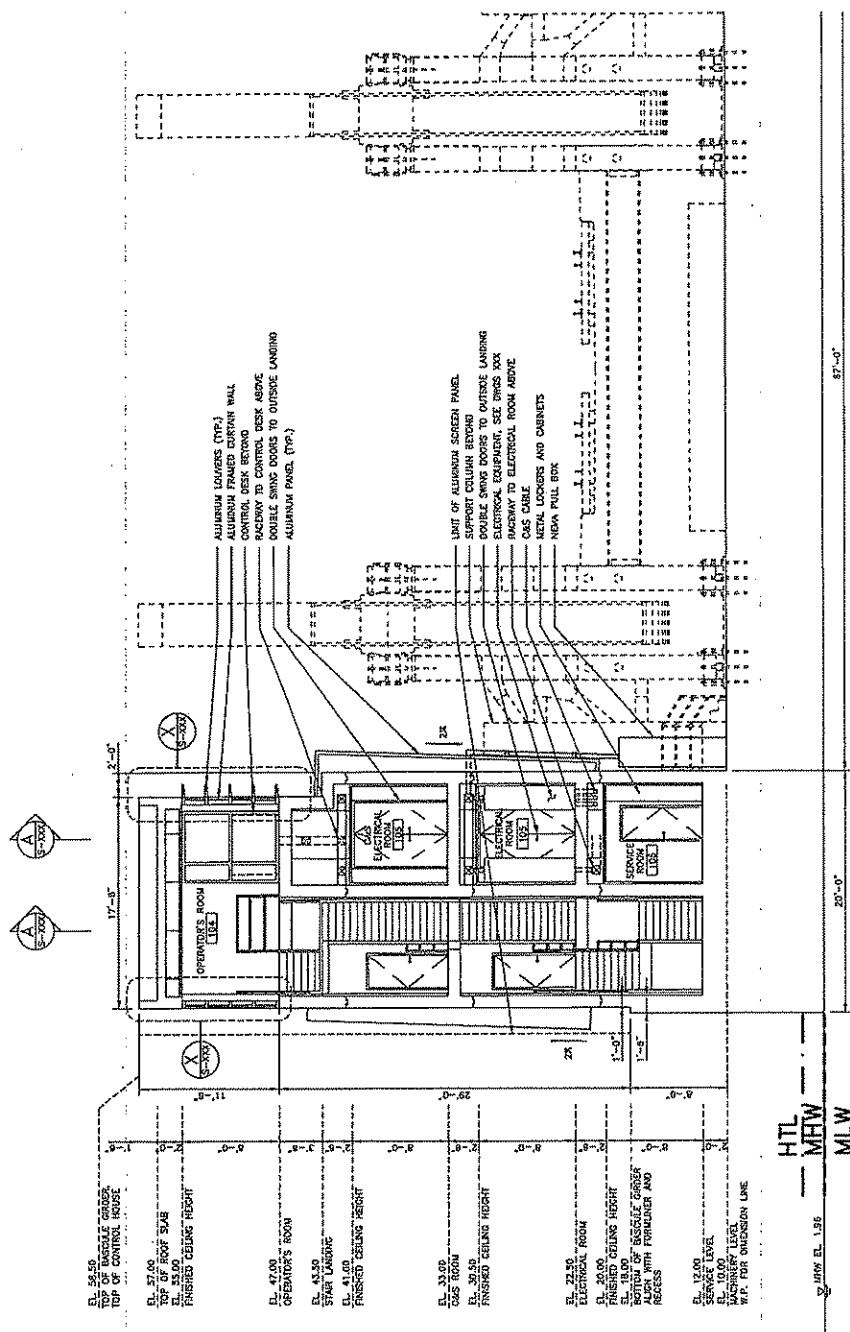
# REPLACEMENT OF NIAN TIC RIVER RAILROAD BRIDGE

East Lyme and Waterford, Connecticut

National Railroad Passenger Corporation(AMTRAK)  
30th Street Station, 4th Floor South  
30th & Market Streets  
Philidelphia, PA 19104

DATE: 5/15/09

SHEET 40

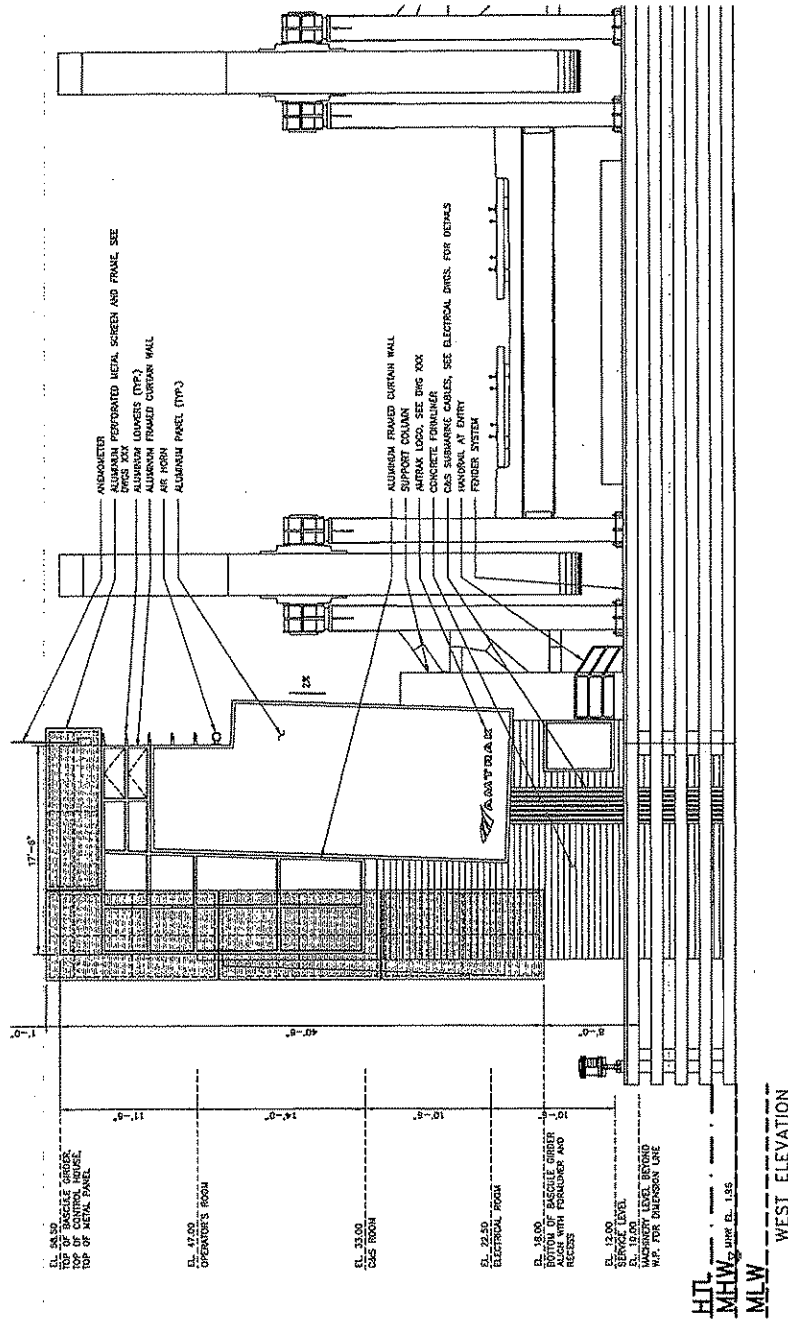


SCALE 1/16" = 1'-0"

EXCEPT AS NOTED  
HTL, MHW, AND MLW ARE  
THE SAME IN EXISTING AND  
PROPOSED CONDITIONS

TIDAL DATUM (NGVD, 1929)  
H.T.L. = ELEV. +3.8  
M.H.W. = ELEV. +1.96  
M.L.W. = ELEV. -0.61  
100 YR FLOOD ELEV. = +11.0

CONTROL HOUSE SECTION 3
REPLACEMENT OF NIANTIC RIVER RAILROAD BRIDGE East Lyme and Waterford, Connecticut
National Railroad Passenger Corporation (AMTRAK) 30th Street Station, 4th Floor South 30th & Market Streets Philadelphia, PA 19104
DATE: 5/15/09
SHEET 41



SCALE 1/16"=1'-0"

EXCEPT AS NOTED  
HTL, MHW, AND MLW ARE  
THE SAME IN EXISTING AND  
PROPOSED CONDITIONS

TIDAL DATUM (NGVD 1929)

H.T.L. = ELEV. +3.8

M.H.W. = ELEV. +1.96

M.L.W. = ELEV. -0.61

100 YR FLOOD ELEV. = +11.0

CONTROL HOUSE WEST ELEVATION	
REPLACEMENT OF NIANTIC RIVER RAILROAD BRIDGE East Lyme and Waterford, Connecticut	
National Railroad Passenger Corporation (AMTRAK) 30th Street Station, 4th Floor South 30th & Market Streets Philadelphia, PA 19104	
DATE: 5/15/09	SHEET 42



SHEET 43

H.T.L. = ELEV. +3.8  
M.H.W. = ELEV. +1.96  
M.L.W. = ELEV. -0.61  
100 YR FLOOD ELEV. =